DOCUMENT RESUME

ED 355 083 RC 019 077

TITLE	Study of the Indian Education Fellowship Program. Final Report.
INSTITUTION	Pelavin Associates, Inc., Washington, DC.
SPONS AGENCY	Department of Education, Washington, DC. Office of Planning, Budget, and Evaluation.
PUB DATE	30 Apr 91
CONTRACT	300-87-0102
NOTE	94p.
PUB TYPE	Reports - Research/Technical (143)
EDRS PRICE	MF01/PC04 Plus Postage.
DESCRIPTORS	Alaska Natives; *American Indian Education; *American Indians; Educational Attainment; Education Work Relationship; Employment; Federal Programs; *Fellowships; Higher Education; Institutional Characteristics; *Outcomes of Education; *Student Characteristics
IDENTIFIERS	*Indian Education Fellowship Program

ABSTRACT

This document represents a study of the Indian Education Fellowship Program that provides Indian students with financial assistance to attend colleges, universities, or professional schools. It describes the individuals who received Fellowships during 1985-1989 and the higher education institutions they attended. Data were obtained by reviewing application files of recipients and the Integrated Postsecondary Education Data System (IPEDS), contacting university registrars' offices, and conducting a mail survey of the recipients and telephone interviews of recipients' institutions. A total of 287 out of 482 recipients (60 percent) from 178 institutions returned the mail questionnaires. Results of the study indicate: (1) 74 percent of undergraduates and 80 percent of graduate students were enrolled in good standing or had completed their academic programs; (2) of the recipients who completed school, 59 percent of undergraduates and 85 percent of graduate student recipients were employed; and (3) among employed recipients, about 60 percent had at least one job that involved them with members of the Indian community. Good standing enrollment and completing the program are related to: not taking time out, receiving the Fellowship for more years, not having children, and enrollment in medical programs. Institutional characteristics related to study outcomes were also examined. The report discusses the following policy issues: (1) the effect of dropping the criterion of financial need; (2) potential changes in allowable fields of study; (3) the optimal proportion of undergraduate versus graduate recipients; and (4) program management issues. This report contains 15 tables. (LP)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

SCOPE OF INTEREST NOTICE

The ERIC Facility has assigned this document for processing to: RC

In our judgment, this document is also of interest to the Clearinghouses noted to the right. Indexing should reflect their special points of view. HE

ED355083

STUDY OF THE INDIAN EDUCATION FELLOWSHIP PROGRAM

Contract No. 300-87-0102
Task Order No. LB-89-0090

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

FINAL REPORT

Submitted to:

Office of Planning, Budget and Evaluation
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Submitted by:

Pelavin Associates, Inc.
2030 M Street, N.W., Suite 800
Washington, D.C. 20036

April 30, 1991

RC019077

BEST COPY AVAILABLE

EXECUTIVE SUMMARY

STUDY OF THE INDIAN EDUCATION FELLOWSHIP PROGRAM

Purpose of Study

The Office of Planning, Budget, and Evaluation (OPBE) of the Department of Education (ED) commissioned a Study of the Indian Education Fellowship Program in the fall of 1989. This project had two purposes: (1) to provide a description of Fellows (including their prior preparation, progress through school, factors that affect(ed) their progress) and the institutions attended; and (2) to relate these descriptive variables to key outcomes for recipients including degree completion, employment status, and job involvement in the Indian community. This report presents the findings of that study and relates the findings to policy and program management issues regarding the Indian Education Fellowship Program.

Methodology

The study involved five data collection efforts. First, the application files of recipients were searched for descriptive data on the Fellows such as their tribal affiliation, family background, prior academic preparation, progress through school, and financial aid resources. Second, the Integrated Postsecondary Education Data System (IPEDS), an existing data base describing institutions of higher education, was accessed to provide background information on the institutions attended by Fellows. Third, the registrar's office at each of the institutions attended by a recipient was contacted by telephone to ascertain the current status of the recipient (i.e., presently enrolled in good standing, received an undergraduate or graduate degree, or left prior to receiving a degree). Fourth, a questionnaire was sent to present and former recipients to follow up on their activities since receipt of the Fellowship. Information from this mailed questionnaire complemented data gleaned from recipients' applications and the registrars. Fifth,

several questions were asked over the telephone of officials at institutions attended by recipients. The answers to these questions supplemented the information supplied by IPEDS.

Fellowship recipients' files were available in the Office of Indian Education only for individuals who received awards from 1985 through 1989. Therefore, the focus of the data collection efforts was 482 individuals who received the Fellowship in those years and the 178 institutions they attend(ed). A total of 287 recipients (60%) returned questionnaires prior to the end-date of September 15 and are included in the analyses. Most of those who did not return questionnaires could not be located. Data on institutions are complete for all 178 schools.

Results

The outcomes for recipients of the Fellowship are particularly striking:

- Degree completion. As of March/April 1990, 41 percent of undergraduates and 46 percent of graduate student recipients had completed their degrees. Only 26 percent of undergraduates and 20 percent of graduate students had left prior to completion, with the remaining students still enrolled. In other words, 74 percent of undergraduates and 80 percent of graduate students were enrolled in good standing or had completed their programs.

- Employment. Among those recipients who were no longer enrolled in school, most were currently employed and had spent three months or less unemployed since leaving school. That is, 59 percent of undergraduates were "continuously" employed, as were 85 percent of graduate student recipients.

- Job involvement with the Indian community. Among employed recipients, about 60 percent had at least one job that involved them with members of the Indian community (51% of undergraduates and 63% of graduate student recipients).

In addition, certain characteristics of students were significantly associated with these outcomes.

- Undergraduates. Holding all other variables constant, undergraduate recipients who took time out were less likely than those who did not take time out to complete their programs of study or still be enrolled. And, the greater the number of years that undergraduates received the Fellowship, the more likely they were to complete their degrees or still be enrolled in good standing.

- Graduate student recipients. All other factors being equal, graduate student recipients who had at least one child were less likely to complete their degrees (or still be enrolled) than those without children; recipients in the field of medicine were more likely to complete their programs (or be enrolled in good standing)

than those in the fields of business and natural resources; and recipients in the field of natural resources were less likely to complete programs (or still be enrolled) than those in business, medicine, law, and psychology.

Analyses predicting employment status and job involvement with the Indian community could only be done for graduate student recipients. The results are as follows:

- Employment. The higher the number of years the individual was a Fellow, the greater the likelihood of his or her being unemployed for only a short time.

- Job involvement with the Indian community. Recipients in the field of natural resources had the highest degree of involvement, followed by recipients in education, psychology, and law. Recipients in engineering, medicine, and business were less likely than others to be involved.

The findings concerning institutions attended by recipients show that only nine of the 178 institutions were attended by more than 10 recipients; the majority of institutions (53%) were attended by only one recipient. A majority of undergraduates attended schools with medium to large undergraduate enrollments (up to 10,000) that included a distinct minority presence (5 to 15%), but relatively few Indians (generally less than one percent). Most graduate students attended programs with somewhat smaller enrollments (up to 5,000 full-time graduate students) and often had a fairly high percentage of minority peers (over 15%). But they, too, had few Indian colleagues (generally less than one percent). Most of the institutions had from five to 15 percent minority faculty (67% of undergraduate schools and 75% of graduate schools), but few Indian faculty members (75% of the schools had less than one percent).

Policy Issues

Three questions of policy relevance were addressed by these data. The first issue was generated by the decision in 1989 to change the criteria for selection of recipients from merit and financial need to merit alone:

1. Has the change in the criteria for award had an impact on the characteristics of the pool of recipients?[1]

Among the group of graduate student recipients, several significant differences were found between new recipients pre-1989 and new recipients in 1989. First, new recipients in 1989 had significantly higher graduate school grade point averages than new recipients pre-1989 (3.46 versus 3.17 on a scale from 1 to 4): the new criteria are isolating a more qualified group of recipients. Second, new recipients in 1989 who were financially independent of parents had higher incomes than new recipients pre-1989 (a mean of $18,354 versus $11,659): the new criterion allows for individuals with higher incomes to qualify for the Fellowship. Third, a higher percentage of new recipients in 1989 had taken time out from their studies than new recipients pre-1989 (85% versus 67%). The reasons for and effect of these phenomena are not yet clear. In terms of a report on the effects of the change in selection criteria, one may say, at the least, that differences between the groups of recipients are not profound.

The other two policy issues arise from the specifications of the Indian Education Act concerning criteria for award:

2. Should findings with regard to field of study have an effect on the selection of future recipients?

3. Do differences in the results for undergraduate and graduate student recipients suggest that there is an optimal distribution of these two groups within the pool of recipients each year?

The association of characteristics of graduate student recipients in different fields of study with outcomes for these recipients suggests potential changes in the selection process. If the intent of the Fellowship is primarily to help Indian students complete their programs of study, then one might give preference to applicants in medicine, at least over those in natural resources

[1]Only seven undergraduates were newly awarded Fellowships in 1989, so analyses of findings could only include graduate student recipients.

and business administration. If one wished to emphasize the importance of using one's skills to benefit the Indian community, then the emphasis could be placed on the field of natural resources (and, perhaps, on the fields of education, psychology, and law). If the presence of both of these outcomes is strongly desired, then one might de-emphasize study in the fields of engineering and business.

The findings concerning field of study also suggest targets for technical assistance. If program managers wish to target assistance to ensure students' success in completing their programs of study, priority might be given to institutions with recipients studying natural resources, engineering, and business.

With regard to the final policy question, data showed that, overall, the 180 undergraduates constitute 37 percent of the 485 recipients;[2] of the 777 awards made in the five-year period under study, 259 (33%) were to undergraduates. The percentage of awards to undergraduates has generally decreased over the years from 42 percent in 1985 to 23 percent in 1988 and 25 percent in 1989. The difficulties in funding large numbers of undergraduates are that somewhat fewer of them complete their programs of study (74% versus 80% of graduate students), fewer become continuously employed in their fields of study (59% versus 85% of graduate students), and fewer have jobs that involve them with the Indian community (51% versus 63% of graduate students). The advantage of funding undergraduates is that their cost of schooling, on average, continues to be less than that of graduate students ($9,176 for undergraduates in 1989 versus $13,704 for graduate students): more individuals could be funded if a higher percentage of recipients were undergraduates.

There is no obviously "right" proportion of undergraduate and graduate student recipients or of recipients in different fields. But those making selection decisions should be aware of the decrease in percentage of undergraduates funded, and be sure the decrease is justified and intentional.

---

[2]Three of the 482 individuals received Fellowships as undergraduates and as graduate students, resulting in 485 "recipiencies".

TABLE OF CONTENTS

Page

EXECUTIVE SUMMARY i

CHAPTER 1: INTRODUCTION 1

Study Questions 3

CHAPTER 2: DESCRIPTION OF STUDY 6

Overview of Data Gathering Efforts 6
Description of Variables 7
The Universe of Recipients and Institutions 9
Response Rates 10
Differences Between Recipients Who Returned and Did Not Return the Questionnaire 11

CHAPTER 3: RESULTS 14

Description of Indian Education Fellowship Recipients 14
Personal Descriptors 14
Academic Preparation 22
Academic Program and Progress 23
Financial Assistance 26
Use of Support Services 30
Outcomes 30
Summary 31
The Relationship Between Recipient Characteristics and Outcomes 32
Degree Completion--Undergraduates 36
Degree Completion--Graduate Students 37
Employment--Undergraduates 38
Employment--Graduate Students 38
Job Involvement With the Indian Community--Undergraduates 39
Job Involvement With the Indian Community--Graduate Students 39
Description of Institutions Attended by Recipients 40
Characteristics of Institutions 45
Services Offered 47
Outcomes 55
The Relationship Between Institutional Characteristics and Outcomes 57
Summary 59

CHAPTER 4: POLICY AND PROGRAM MANAGEMENT ISSUES 62

Policy Issues 62
The Effect of Dropping the Criterion of Financial Need 62
Potential Changes in Allowable Fields of Study 67
The Optimal Proportion of Undergraduate versus Graduate Recipients 71
Program Management Issues 72
Dissemination of Information 73
Application Process 75
Review Process and Award 75
Communication with OIE Staff 77
Summary 77

CHAPTER 1: INTRODUCTION

The Secretary of Education is seriously concerned about the state of education of Indians (Native Americans and Alaska Natives). This concern is reflected in the Department of Education's plans for the Indian Nations at Risk study. This endeavor has three goals:

- To determine whether current efforts at improving Indian education are cost-effective;
- To identify successful projects to use as models; and
- To develop plans to improve current conditions.

One issue that will be discussed in the study is the matriculation of Indians in institutions of postsecondary education. At the moment, the rate of matriculation is very low, and one of the effects of this low rate is that relatively few Indians are employed in the professions that require advanced education (e.g., medicine, law, engineering).

Researchers have identified inadequate financial assistance as one of the reasons for the low rate of enrollment of Indians in colleges, universities, and professional programs. In 1976 the Department of Education began to address this inadequacy by awarding fellowships for graduate and undergraduate study to Indian students. Section 5323 of the Indian Education Act of 1988 stipulates that:

> During each fiscal year ending prior to October 1, 1993, the Secretary is authorized to award fellowships to be used for study in graduate and professional programs at institutions of higher education. Such fellowships shall be awarded to Indian students in order to enable them to pursue a course of study of not more than 4 academic years leading toward a post baccalaureate degree in medicine, clinical psychology, psychology, law, education, and related fields or leading to an undergraduate or graduate degree in engineering, business administration, natural resources, or related fields.

The Indian Education Fellowship Program, which is administered by the Office of Indian Education (OIE) in ED, is designed to provide Indian students with the financial assistance they

need to attend a college, university, or professional school. The fellowships may support a full program of study to ensure that students do not simply matriculate, but have the financial resources to complete a degree. The goal is for students to graduate with skills that are needed in the work place. Thus, a Fellowship should enable a student to matriculate in a program in one of the selected areas, graduate from the program, and obtain employment in a field related to the program of study. Although there is no explicit goal of employment in a job that assists other Indians, there is an underlying spirit in the legislation suggesting that this Fellowship Program should assist the broad Indian community.

The selection of Fellows is based primarily on academic performance, and the process is intended to identify applicants who are most likely to complete their proposed degree programs. Prior to the 1989-90 school year, selection was made first on the basis of academic merit and second on the basis of financial need. Beginning with the 1989-90 awards, however, the financial need criterion was eliminated. The amounts of awards vary, either supplementing other available funds or funding the full cost of a student's program. For example, Fellowship awards in fiscal year 1989 ranged from $765 to $33,276.

The Office of Planning, Budget, and Evaluation (OPBE) of the Department of Education (ED) commissioned a Study of the Indian Education Fellowship Program in the fall of 1989. This project had two purposes: (1) to provide a description of Fellows, the institutions they attend(ed), their prior preparation and progress through school, and factors that affect(ed) their progress; and (2) to relate these descriptive variables to key outcomes for recipients including degree completion, employment status, and continued involvement in the Indian community. This report presents the findings of that study and relates the findings to policy and program management issues regarding the Indian Education Fellowship Program and its oversight.

In the following sections of this chapter we describe the study questions to be addressed. In subsequent chapters, we discuss the five data-gathering efforts required, summarize the findings from the data, and discuss the implications of the findings.

Study Questions

The issues examined in this study specifically address program planners' and managers' questions relating to outcomes and the impact of the program on recipients and the broader Indian community. First, are there certain student characteristics that are associated with a greater likelihood of positive outcomes (i.e., completing an educational program, becoming employed, and assisting the Indian community)? It may be, for example, that students who are single are more likely to show positive outcomes than students who are married, or that students in some particular fields are more likely than others to complete degrees and become employed in a job involved with the Indian community.

Second, are there particular characteristics of institutions that are associated with an increased likelihood of positive student outcomes? It may be that certain institutional descriptors (e.g., relatively small size of student enrollment, relatively high percentage of minority students and faculty) are correlated with higher completion rates and success in finding employment. It may also be that the services offered by institutions for minority students--and, specifically, for Indian students--are related to positive outcomes.

The answers to these questions will assist the Department and others in developing program policies and in providing technical assistance to institutions to enhance the probability of success for Fellowship recipients. If, for example, undergraduates with higher Scholastic Aptitude Test (SAT) scores complete their programs at much higher rates than those with lower scores, program planners could decide to change the relative importance of this criterion in the selection

process or to work much more closely with those institutions attended by students with lower SAT scores to develop necessary support systems. If recipients in certain fields of endeavor are more likely to complete their programs and become employed, program planners could decide to propose changes in the eligible fields of study.

Similar decisions can be made from information about the institutions attended by recipients. If recipients at particular institutions are rarely completing programs and have difficulty finding employment, the Department could work more closely with the institutions to ensure that recipients have the support they need to complete their programs and locate jobs. These staff might also decide that they would like to work more closely with recipients planning to attend such institutions. If certain support services are offered by institutions where students are more likely to complete degrees and find employment, then program managers may encourage all institutions to offer such programs.

Three questions about the selection process seem particularly important in the determination of program policies. The first i. generated by the decision in 1989 to change the criteria for selection of recipients from merit and financial need to merit alone:

- Has the change in the criteria for award resulted in a change in the pool of recipients?

By changing the criteria for award from merit and financial need to merit alone, it may be that there are changes in the characteristics of recipients. It is important to know just what sorts of changes, if any, have occurred and to decide whether these changes in the pool of recipients reflect program goals.

The other two issues arise from the selection criteria defined in the Indian Education Act regarding field and level of study (undergraduate or graduate):

- Should findings with regard to field of study have an impact on the selection of future recipients?

- Do differences in the results for undergraduate and graduate student recipients suggest that there is an optimal distribution of these two groups within the pool of recipients each year?

Findings with regard to field of study that show that students in certain fields are more likely to experience positive outcomes than students in other fields suggest the option of eliminating some fields or changing the relative distribution of awards to students in different fields to enhance the overall level of success of recipients. Similarly, results regarding differences between outcomes for undergraduate and graduate student recipients might suggest setting limits on the proportion of awardees at each level.

CHAPTER 2: DESCRIPTION OF STUDY

In this chapter we provide an overview of the five data-gathering efforts required by this study, describe the elements of data that were collected, discuss the universe of recipients and institutions about which data were generated, focus on the response rates obtained from the data collection efforts, and present a summary of the differences between recipients who returned the questionnaire and those who did not.

Overview of Data Gathering Efforts

The study of the Indian Education Fellowship Program involved five data collection efforts. First, the application files of recipients were searched for descriptive data on the Fellows such as their tribal affiliation, family background, prior academic preparation, progress through school, and financial aid resources. Second, the Integrated Postsecondary Education Data System (IPEDS), an existing data base describing institutions of higher education, was accessed to provide background information on the institutions attended by Fellows. Third, the registrar's office at each of the institutions attended by a recipient was contacted by telephone to ascertain the current status of the recipient (i.e., presently enrolled in good standing, received an undergraduate or graduate degree, not enrolled and left prior to receiving a degree).

Fourth, a questionnaire was sent to present and former recipients to follow up on their activities since receipt of the Fellowship. Information from this mailed questionnaire complemented data gleaned from recipients' applications and the registrars. Fifth, a series of questions were asked over the telephone of officials at institutions attended by recipients. The answers to these questions supplemented the information supplied by IPEDS.

Description of Variables

The description of Fellowship recipients and the institutions they attend(ed) and the relating of these descriptors to measures of outcomes for recipients required the integration of data from multiple data sources. To meet the first goal of the study, the description of recipients and institutions, we extracted the following data from the applicant files:

- Personal descriptors: Age, gender, marital status, number of dependents, tribe or band, and family income;
- Academic preparation: Grade point average in previous level of study, grade point average in present program to date, standardized test scores, and name of previous academic institution;
- Academic progress: Changes of institution in college or graduate school, instances of taking time out from schooling or studying part-time;
- Current academic program: Undergraduate/graduate level, name of institution, year of program (first, second, etc.), and field; and
- Financial assistance: Amount of Indian Education Fellowship award, source and amount of other financial assistance, and total cost of present year of schooling.

The major student descriptor that was not available in these files is the number of years of receipt of the Fellowship, a measure needed to divide students into single versus multiple-year recipients. To code number of years of recipiency, we asked students to report their history of receipt of the Fellowship on the student questionnaire.

From IPEDS we extracted the following descriptors of institutions:

- Type of institution (two-year college, four-year college, university, professional school);
- Institutional control (public, private for-profit, private non-profit);
- Size of enrollment for full-time students, separate for graduate and undergraduate divisions;
- Racial/ethnic distribution of full-time students, separate for graduate and undergraduate divisions; and

- Cost of attending the institution (in 1985).

Three key descriptors of institutions were not available from IPEDS and had to be gathered directly from institutions:

- Racial/ethnic breakdown of faculty, which is needed to describe the availability of mentors or role models from the Indian community;
- Support services for all minority students, and Indian students in particular, which is required to examine the degree to which the institution offers services that might assist Indians throughout their educational program; and
- Sources of financial support for programs for Indian students or programs concerning Indians, an indicator of institutional commitment to Indian education.

In order to accomplish the second purpose of the study, the relating of recipient and institution descriptors to recipient outcomes, additional data were gathered from recipients on events that occurred subsequent to the educational program supported by the Fellowship. There were two central questions that provided the foundation for this data gathering: (1) Are recipients obtaining the outcomes intended by program policy makers? and (2) Can the management of the program be improved to enhance recipients' likelihood of obtaining positive outcomes? To answer the first question, data on the following outcomes were gathered:

- Completion of the degree program;
- Decisions of undergraduate recipients to continue on to graduate study;
- Employment in the recipient's field of study;
- Maintaining employment on a continuous basis; and
- Finding employment in a job that involves the Indian community.

To address the issue of improvement of program management, data on the following issues were collected:

- How did recipients find out about the Fellowship program? Answers to this will help managers direct outreach efforts to contact the largest number of potential recipients;

- To what extent did the Fellowship program influence recipients' decision to attend school or to study in a particular field? Results on this topic may assist managers deciding on publicity for the program or on expanding or contracting the list of approved fields;

- What support services were available at the institution and used by recipients during their Fellowship years? This listing will help managers advise institutions on ways to assist recipients more effectively;

- How did recipients find their first jobs? This information will allow managers to advise institutions on providing assistance for current recipients in finding employment;

The Universe of Recipients and Institutions

Fellowship recipients' files were available in the Office of Indian Education only for individuals who received awards from 1985 through 1989. Therefore, the focus of the data collection efforts was the 482 individuals who received the Fellowship in those years. File data were extracted on all individuals in January 1990. Following OMB clearance in June, the 481 living recipients were mailed questionnaires.[1] As of November 20, a full 297 had returned the form for a response rate of 62 percent. Of these, 287 were received prior to September 15 and are included in the final analytic file; the 10 additional questionnaires returned later in the fall are not included in the analysis.

The full cadre of recipients attend(ed) approximately 178 different institutions of higher education.[2] All but one of the institutions had responded to the IPEDS survey in 1986. Every institution was contacted by telephone twice during the project: in March of 1990, the registrars

---

[1]One recipient died during the tenure of his recipiency.

[2]We use the word "approximately" because we list institutions as different if they constitute different records on IPEDS, though officially they may not be separate institutions. For example, The University of Oklahoma Health Sciences Center is separated from The University of Oklahoma; the different campuses of a state university are coded separately.

were called to verify student status; in June (following OMB clearance), other officials were called to supplement IPEDS information. During the second telephone call, the one institution that had not responded to the IPEDS survey was asked the IPEDS questions that were relevant to this analysis, as well as the questions supplementing the IPEDS information.

Response Rates

Several methods were used to maximize the response rate among Fellowship recipients:

- Each questionnaire was accompanied by a cover letter signed by John Tippeconnic, Director of the Office of Indian Education, describing the project and encouraging recipients to respond;
- A postage-paid envelope accompanied the questionnaire;
- Ten days after the questionnaire was mailed, a follow-up postcard was mailed to each individual who had not yet returned a questionnaire;
- Ten days after the mailing of the postcard, we began a three week telephone search for recipients whose questionnaires had not been returned; and
- When we exhausted the list of telephone numbers from the recipient files, we called the alumni offices of the recipients' institutions, membership groups of professionals in the recipients' fields, and offices of the recipients' tribes.

It is impossible to determine the number of recipients who responded to each of the approaches. An individual who did not immediately answer the questionnaire might have returned it eventually without any reminder. At times, questionnaires had already been mailed back (though not yet received) when we contacted someone by telephone. However, we can report on the number of recipients who did not immediately return the questionnaire and were contacted during the telephone search process. Specifically, a total of 88 recipients returned the questionnaire prior to the creation of a telephone list, for a response rate of 18 percent. The remaining 394 recipients (82 percent) were placed on the telephone list. Attempts were made to reach all of these recipients through all available telephone numbers; calls were made during the

day on weekdays, in the evening, and on weekends. The personal contacts by telephone appeared to have a strong positive affect on responses, as an additional 209 recipients returned the questionnaire during or following the period when project staff were telephoning recipients.

Differences Between Recipients Who Returned and Did Not Return the Questionnaire

Recipients who returned the questionnaire prior to September 15 were compared with those who did not on the complete set of variables for which information could be gleaned from applicant files and from the calls to the registrars.[3] Tests of significance[4] showed that the 108 undergraduate recipients who returned the form were significantly different from the 72 who did not return the form in the following ways:

- More of those returning the questionnaire received the Fellowship in recent years than in earlier years (53% of 1985 recipients, 62% of 1986, 74% of 1987, 74% of 1988, and 79% of 1989);
- More of those returning the questionnaire took time out from schooling than those who did not return the form (43% versus 21%);
- More had attended school part-time at some point (27% versus 5%);
- More had received the Fellowship for multiple years (50% versus 21%);
- The mean income of those returning the form was higher, among recipients who had been financially dependent ($34,610 versus $21,658); and
- A higher percentage of those who returned the form were still in school or had completed their programs (84% versus 59%).

Among graduate student recipients, the 179 who returned the form were different from the 126 who did not in the following ways:

---

[3]Note that analyses that separate undergraduate and graduate recipients have a total N of 485 because three of the 482 individuals who were Fellows received awards for both levels of study.

[4]X^2 tests were used for categorical variables and t-tests for continuous variables; all differences reported in this paper as "significant" had a probability of occurrence by chance alone of less than five percent.

- More who returned the form received the Fellowship in recent years than in earlier years (51% of 1985 recipients, 60% of 1986, 67% of 1987, 74% of 1988, and 78% of 1989);
- More had taken time out during their schooling (79% versus 52%);
- More had studied part-time at some point (34% versus 12%);
- Fewer had changed schools at least once (32% versus 50%);
- More had received the Fellowship for multiple years (66% versus 38%); and
- More were still in school or had completed their degree programs (84% versus 73%).

The initial finding for both undergraduates and graduate students (that forms were more likely to be returned by recent recipients) is not unexpected since we were more likely to have correct addresses for more recent recipients. It is also not of particular significance, in terms of its potential effect on the accuracy of our results. That is, there is no reason to believe that the outcomes for recipients will differ across year of recipiency. In addition, the percentage of recipients returning the questionnaire in any given year is above 50 percent; we have good representation of all groups.

There are two sorts of implications from the other findings for the interpretation of further results. Some findings suggest that the data located in the applicant files are not complete. Specifically, information on taking time out from schooling, studying part-time, and changing schools is not captured fully in the file data; it took specific questioning in these areas to elicit from recipients their complete educational history. Data in the files undercount the number of recipients who interrupted their programs of study by stopping out and/or studying part-time at some point; they may overcount instances of changing schools within a degree program. Similarly, we knew that our information on years of recipiency was incomplete. The recipients who

returned questionnaires were much more likely to be catalogued as multiple-year recipients than those who did not return the form.

In interpreting the results, it is important to remember these findings. That is, if any of these variables suggest significant differences between groups of recipients--when we know that the variables are undercounted--we may expect that the true differences are even greater than those shown. We know that the recipients who are coded as not taking time out and not studying part-time include some people who did these things. On the other hand, we have good reason to believe that most of the individuals who are coded as taking time out or studying part-time did so. The errors in coding operate in only one direction; the differences in groups are equal to or greater than those shown.

The second implication is that the people who returned questionnaires may be fundamentally different from those who did not. That is, more of the recipients who had completed degree programs or were still enrolled returned forms than did individuals who had left their educational programs before completion. Among the undergraduate recipients who were financially dependent on parents, those who came from families with higher incomes were more likely to return the forms. In consequence, we are learning more about the experiences of undergraduates who came from higher socio-economic groups than those who came from lower socio-economic groups and recipients who succeeded in their educational goals than those who were not as successful. We do not have as much information as we might about the reasons recipients did not complete their programs.

CHAPTER 3: RESULTS

Results on four separate issues are presented below. First, we present findings on the descriptors of recipients of the Indian Education Fellowship over the preceding five years. Second, we discuss the relationship between these descriptors and the outcome variables: degree completion, employment, and job involvement with the Indian community. Third, we describe the set of institutions attended by recipients. Finally, we assess the relationship between institution descriptors and outcomes for Fellowship recipients.

Description of Indian Education Fellowship Recipients

Exhibits 1 and 2 show the frequencies of occurrence of the various descriptors of recipients of the Indian Education Fellowship from the 1985-86 school year through the 1989-90 school year. Our discussion of the findings divides the variables into six groups: personal descriptors; academic preparation; academic program and progress; financial assistance; use of support services; and outcome measures in the areas of education, employment, and involvement with the Indian community. Note that most of these variables were drawn from recipients' applications for funding. The exceptions are the measures of academic program and process, which were initially taken from the applications and then updated from questionnaire information; and the measures of use of support services and outcomes, which came directly from the questionnaires. All measures were taken from the most recent set of data for recipients who held the fellowship for multiple years (e.g., age in the last year of recipiency, grade point average through most recent term).

Personal Descriptors

The following list summarizes findings on the characteristics of recipients:

- Gender. About half of the recipients were female and half male.

EXHIBIT 1

Frequencies of Occurrence of Descriptors of IEF Recipients

	Undergraduates		Graduates		Total	
	#	%	#	%	#	%
Number of Recipients	180		305		482*	
Gender						
Female	86	48%	154	50%	238	49%
Male	94	52%	151	50%	244	51%
Age						
16 - 21	124	69%	1	0%	125	26%
22 - 26	27	15%	112	37%	138	29%
Over 26	29	16%	190	63%	217	45%
Marital Status						
Single	163	91%	199	67%	359	75%
Married	17	9%	100	33%	117	25%
Number of Children						
0	153	85%	177	59%	327	68%
1 or more	27	15%	124	41%	151	32%
Financial Status						
Independent	75	47%	271	94%	343	77%
Dependent	83	53%	17	6%	100	23%
Family Income - Independent						
Under $5,000	29	57%	59	31%	87	55%
$5,000 or above	22	43%	132	69%	153	45%
Family Income - Dependent						
Under $25,000	28	39%	3	19%	31	43%
$25,000 or above	44	61%	13	81%	57	57%
GPA in High School						
Under 2.67	8	6%				
2.67 - 3.33	38	31%				
3.34 or above	77	63%				
GPA in College						
Under 2.67	40	33%	39	15%	79	21%
2.67 - 3.33	43	36%	145	54%	186	48%
3.34 or above	37	31%	83	31%	119	31%
GPA in Graduate School						
Under 2.67			28	15%		
2.67 - 3.33			83	43%		
3.34 or above			82	42%		

*Note: Three individuals received the Fellowship as undergraduates and again as graduates, so the Total column generally shows three fewer recipients than the sum of undergraduates plus graduates. The exceptions are variables where data are missing for one or more of these individuals or where data for both levels are included (Field and Degree Completion).

EXHIBIT 1 (Continued)

Frequencies of Occurrence of Descriptors of IEF Recipients

	Undergraduates		Graduates		Total	
	#	%	#	%	#	%
SAT Verbal Scores						
Under 500	52	61%				
500 - 599	25	29%				
600 - 800	8	9%				
SAT Quantitative Scores						
Under 500	38	45%				
500 - 599	27	32%				
600 - 800	20	23%				
MCAT Total Scores						
Under 50			19	53%		
50 or above			17	47%		
LSAT Scores						
Under 34			31	55%		
34 or above			25	45%		
Field of Study						
Business Administration	46	25%	39	13%	85	17%
Education			63	21%	63	13%
Engineerir g	84	47%	8	2%	92	19%
Law			82	27%	82	17%
Medicine			64	21%	64	13%
Natural Sciences/Resources	50	28%	12	4%	62	13%
Psychology/Clinical Psychology			37	12%	37	8%
Number of Years of Recipiency						
1	111	62%	138	45%	249	52%
2	31	17%	91	30%	122	25%
3	22	12%	56	18%	76	16%
4 or more	16	9%	20	7%	35	7%
Instances of Stopping Out						
None	106	65%	88	31%	193	43%
At least one	58	35%	199	69%	255	57%
Part-time Study						
At no time	99	77%	184	73%	281	74%
At some time	30	23%	69	27%	98	26%
Changed Schools Within a Degree Program						
At no time	126	71%	182	61%	306	64%
At some time	52	29%	119	39%	170	36%

EXHIBIT 1 (Continued)

Frequencies of Occurrence of Descriptors of IEF Recipients

	Undergraduates		Graduates		Total	
	#	%	#	%	#	%
Total IEF Award Amount (Most Recent Year)						
Under $1,000	23	13%	5	2%	28	6%
$1,001 - 5,000	105	58%	52	17%	157	33%
$5,001 - 10,000	37	21%	103	34%	139	29%
$10,001 - 15,000	9	5%	85	28%	93	19%
$15,001 - $20,000	1	1%	38	12%	39	8%
Over $20,000	5	3%	22	7%	26	5%
Annual Cost of Schooling						
Under $1,000	3	2%	1	1%	4	1%
$1,001 - 5,000	40	33%	17	9%	58	19%
$5,001 - 10,000	45	38%	33	18%	78	26%
$10,001 - 15,000	17	14%	58	31%	73	24%
$15,001 - 20,000	13	11%	39	21%	52	17%
Over $20,000	2	2%	36	20%	38	13%
Number of Other Sources of Financial Aid						
0	76	42%	163	53%	236	49%
1	32	18%	71	23%	103	21%
2	26	14%	39	13%	65	14%
3	19	11%	21	7%	40	8%
4 or more	27	15%	11	4%	38	8%
Source of Other Financial Aid						
At least one Federal source	73	70%	94	66%	167	68%
No Federal source	31	30%	48	34%	79	32%
At least one state source	24	23%	17	12%	41	17%
No state source	80	77%	125	88%	205	83%
At least one institutional source	35	34%	67	47%	102	42%
No institutional source	69	66%	75	53%	144	58%
At least one tribal source	12	11%	21	15%	33	13%
No tribal source	92	89%	121	85%	213	87%
Type of Other Financial Aid						
At least one grant	99	95%	124	87%	223	91%
No grant	5	5%	18	13%	23	9%
At least one loan	35	34%	62	44%	97	39%
No loan	69	66%	80	56%	149	61%
At least one work-study type	15	14%	6	4%	21	8%
No work-study type	89	86%	136	96%	225	92%

EXHIBIT 1 (Continued)

Frequencies of Occurrence of Descriptors of IEF Recipients

	Undergraduates		Graduates		Total	
	#	%	#	%	#	%
Number of Support Services Used						
0-3	62	59%	111	63%	172	62%
4-6	35	34%	49	28%	83	30%
7-10	7	7%	15	9%	22	8%
Use of Support Services						
Orientation/Summer program	17	35%	51	59%	67	50%
Tutoring/Remedial courses	31	38%	38	36%	68	36%
Admin. minority office	33	52%	68	66%	101	61%
Academic/Career counseling	50	54%	56	44%	105	48%
Personal counseling	18	24%	29	27%	47	26%
Student jobs	42	49%	48	44%	88	45%
Placement services	32	40%	36	34%	67	36%
Housing assistance	22	41%	31	38%	53	39%
Organization for minorities	52	59%	105	77%	156	70%
Association with Indian community	24	75%	65	79%	89	78%
Degree Completion						
Completed degree	73	41%	140	46%	213	44%
Still enrolled	60	33%	102	34%	161	34%
Left prior to degree completion	46	26%	62	20%	108	22%
Employment						
0-3 months unemployed	30	59%	93	85%	123	77%
Over 3 months unemployed	21	41%	17	15%	37	23%
Job Involvement with Indian Community						
Involved	26	51%	71	63%	97	60%
Not involved	25	49%	41	37%	65	40%

EXHIBIT 2

Number of Indian Education Fellowship Recipients Who Belong to Each Tribe

Tribes	Number of IEF Recipients	Tribes	Number of IEF Recipients	Tribes	Number of IEF Recipients
Lumbee	61	Cherokee	39	Navajo	17
Cherokee (Echota)	15	Minnesota Chippewa	14	Cheyenne River Sioux	13
Chippewa (Turtle Mountain)	13	Oglala Sioux	11	Creek	9
Blackfeet	8	Choctaw	8	Oneida	8
Osage	8	Standing Rock Sioux	8	Comanche	7
Chippewa-Cree	6	Kiowa	6	Rosebud Sioux	6
Seneca	6	Sisseton-Wahpeton Sioux	6	Winnebago	6
Sault ste Marie Chippewa	5	Three Affiliated Tribes	5	Yakima	5
Assiniboine and Sioux	4	Chippewa (Lac Courte Oreilles)	4	Coharie	4
Eskimo	4	Mohawk (St. Regis)	4	Onondaga	4
Penobscot	4	Tlingit & Haida	4	Alaska Native	3
Arapahoe	3	Cherokee (Eastern Band)	3	Cheyenne (Northern)	3
Fort Belknap (Gros Ventre)	3	Haliwa-Saponi	3	Hoopa Valley	3
Iowa	3	Lummi	3	Miami	3
Nez Perce	3	Omaha	3	Ottawa & Chippewa (Grand Travers)	3
Pawnee	3	Pueblo of Laguna	3	Aleut	2

23

EXHIBIT 2 (Continued)

Number of Indian Education Fellowship Recipients Who Belong to Each Tribe

Tribes	Number of IEF Recipients	Tribes	Number of IEF Recipients	Tribes	Number of IEF Recipients
Cheyenne-Arapaho	2	Chickasaw	2	Chinook	2
Chippewa (Lac Du Flambeau)	2	Colville	2	Comanche/Kiowa	2
Gila River Pima	2	Hopi	2	Houma	2
Little Shell Chippewa	2	Mattaponi	2	Menominee	2
Northern Michigan Ottawa	2	Salinian	2	Salish & Kootenai	2
Seminole/Creek	2	Te-Moak	2	Tuscarora	2
Waccamaw Sioux	2	Yankton Sioux	2	Bishop	1
Caddo	1	Caddo/Wyandotte/Ottawa	1	Catawba	1
Cherokee/Creek	1	Chickahominy	1	Chickasaw/Choctaw (Mississippi)	1
Chippewa	1	Chippewa (Keweenaw Bay)	1	Chippewa (Red Lake)	1
Chippewa (White Earth)	1	Choctaw (Mississippi)	1	Choctaw/Cherokee	1
Coeur D'Alene	1	Cowlitz/Karok	1	Creek (Poarch)	1
Crow Creek Sioux	1	Devil's Lake Sioux	1	Dillingham	1
Forest County Potawatomi	1	Fort Belknap	1	Gabrieleno	1
Hoonah	1	Jicarilla Apache	1	Juaneno	1
Laguna/Paiute	1	Lake Superior Chippewa (Bad River)	1	Luiseno Mission (La Jolla)	1

EXHIBIT 2 (Continued)

Number of Indian Education Fellowship Recipients Who Belong to Each Tribe

Tribes	Number of IEF Recipients	Tribes	Number of IEF Recipients	Tribes	Number of IEF Recipients
Maidu	1	Makah	1	Mohawk	1
Munsee	1	Muskogee Creek	1	Narragansett	1
Papago	1	Pascua Yaqui	1	Pawnee/Choctaw	1
Pee Dee	1	Peoria	1	Potawatomi	1
Potawatomi (Pokagon)	1	Pueblo	1	Pueblo of Isleta	1
Pueblo of Taos	1	Pueblo of Zia	1	Pueblo Santo Domingo	1
Pueblo/Pima/Papago	1	Quileute	1	Ramapough Mt. Indians	1
Sac and Fox	1	Schaghticoke	1	Seminole	1
Seneca (Tonawanda)	1	Shinnecock	1	Shoshone	1
Shoshone (Western)	1	Sitka	1	Sitnasuak	1
Spokane	1	Squaxin Island	1	Stoulmidge/Munsee	1
Suquamish	1	Tauhina	1	Tlingit	1
Tohono O'Odham	1	Tolowa	1	Tsimshian	1
Unknown	1	Walker River Paiute	1	White Mountain Apache	1
Wichita	1	Yavapai-Apache	1	Yupik Eskimo	1

- Age. The majority of undergraduates (69%) ranged in age from 16 to 21: the majority of graduate students (63%) were over 26.

- Marital status. Three-quarters of the recipients were single: 91 percent of the undergraduates and 67 percent of the graduate students.

- Number of children. Most recipients (68%) had no children; a higher percentage of graduate students than undergraduates had children (41% versus 15%).

- Financial status. About half of the undergraduates (47%) were financially dependent on their parents; very few of the graduate students were financially dependent (only 6%).

- Family income. Among recipients who were financially dependent on parents, slightly more than half (57%) reported parental incomes greater than $25,000. Among recipients who were financially independent, more reported incomes under $5,000 than over (55% versus 45%).

- Tribal membership. Tribes represented by 10 or more Fellowship recipients include the Lumbee, Cherokee, Navajo, Cherokee (Echota), Minnesota Chippewa, Cheyenne River Sioux, Chippewa (Turtle Mountain), and Oglala Sioux (see Exhibit 2).

Thus, recipients reflect a range of backgrounds. Most appear to be average college students in terms of age, marital status, and number of children. About half of the undergraduates and most of the graduate student recipients were financially independent of parents. A large number of tribes are represented by at least one Fellowship recipient.

Academic Preparation

The major indices in this area are grade point averages and standardized test scores.

- Grade point averages (GPAs). Nearly two-thirds of the undergraduates (63%) had high school GPAs of 3.34 or above; about one-third of undergraduate and graduate student recipients (31% of each group) had college GPAs of that magnitude; 42 percent of graduate students had graduate school GPAs of 3.34 or above.

- Test scores. Only nine percent of undergraduates showed SAT verbal scores over 600; about 23 percent had SAT quantitative scores over 600. MCAT and LSAT scores of graduate student recipients spanned a fairly wide range.

Thus, in terms of their school programs of study, the results suggest that some recipients have grades and test scores that would admit them to the best of colleges; others seem prepared for less selective colleges and universities.

Academic Program and Progress

Two types of measures are included in this category: descriptors of the degree programs of recipients; and indices of the continuity of their progress through the program. The two variables that describe recipients' degree programs are field of study and year within the program (first year, second year, etc.). The findings for field are as follows:

- Field of study. Almost half of the undergraduate recipients (47%) were in engineering, with a quarter (25%) in business administration and a quarter (28%) in natural resources. About one-quarter of graduate students were studying each of the fields of education (21%), law (27%), and medicine (21%); about one-eighth were in business (13%) and psychology (12%); only a few were enrolled in engineering (2%) and natural resources (4%).

Exhibit 1 does not show program year of study because many recipients received the Fellowship for multiple years, and we chose to display data on that exhibit just once for each recipient (their most recent year of recipiency). Because we know that about half (48%) of the recipients held the Fellowship for multiple years, a chart showing their program year in their most recent year of recipiency would not be an appropriate representation of the distribution of program years of recipients in any given calendar year. It would make it appear that more students were in advanced phases of their study than was true for any given calendar year.

Exhibit 3 displays the distribution of year of program for each of the five years from 1985 to 1989, separating undergraduates and graduate student recipients. Both undergraduates and graduate student recipients in each year of award ranged from first- to fourth-year students. A somewhat higher percentage of undergraduates than graduate students were in their fourth (or higher) year of study (20% versus 12%), probably due to the fact that many graduate programs are one to two years in length (e.g., Masters in Education, Masters in Business Administration).

EXHIBIT 3

Year in School Program by Calendar Year of Award:

A. Undergraduates

Year in Program

	1		2		3		4 or more	
Year of Award	#	%	#	%	#	%	#	%
1985	34	39%	24	28%	22	25%	7	8%
1986	23	33%	18	26%	12	18%	16	23%
1987	16	34%	4	9%	18	38%	9	19%
1988	4	15%	7	26%	5	18%	11	41%
1989	5	17%	7	24%	7	24%	10	35%
TOTAL	82	32%	60	23%	64	25%	53	20%

B. Graduate Students

Year in Program

	1		2		3		4 or more	
Year of Award	#	%	#	%	#	%	#	%
1985	55	45%	47	39%	16	13%	3	3%
1986	32	27%	44	37%	31	26%	13	11%
1987	32	33%	32	33%	26	26%	8	8%
1988	16	17%	36	39%	16	17%	25	27%
1989	19	22%	24	28%	29	34%	14	16%
TOTAL	154	30%	183	35%	118	23%	63	12%

This rationale is also supported by the fact that a somewhat higher percentage of graduate students than undergraduates were in their second year of the program (35% versus 23%).

There was also variation (across program years) in the distribution of both undergraduate and graduate students by year of award, which was particularly evident among first-year and fourth-year students. The percentages of undergraduates in the first year of their programs varied from 14 percent in 1988 to 39 percent in 1985; the percentages of graduate students in their first year ranged from 17 percent in 1988 to 45 percent in 1985. The percentages of fourth-year undergraduates varied from 8 percent in 1985 to 41 percent in 1988, while for graduate students the percentages ranged from 3 percent in 1985 to 27 percent in 1988. It appears that OIE tries to fund students through the completion of their programs, and in years when there are a large number of fourth-year students, they do not admit as many first-year students.

In terms of continuity of study, the following three results are important:

- Instances of "stopping out". Most undergraduates (65%) had not taken time out from their schooling in high school, between high school and college, or in college. Most graduate students (69%) had taken time out at some point.
- Part-time study. About three-quarters of the recipients never studied part-time (74%); one-quarter studied part-time at some point.
- Changing schools. Most recipients (64%) had not changed schools while enrolled in a degree program.

Thus, most of the undergraduates appear to have begun a program and remained in that program at the same school, not stopping out or studying part-time between matriculation and graduation. Graduate student recipients were also likely to remain at the same school for the duration of a program and to study full-time, but more than half of them took time out at some point between high school and the end of graduate school. A review of the data showed that the period when the largest number of graduate student recipients took time out was between college and graduate school. Forty-five percent of the recipients stopped out at this point, in comparison with 34

percent in college, 26 percent between high school and college, and 18 percent during graduate school.[4]

The explanations offered for taking time out from schooling and for studying part-time were similar for undergraduate and graduate recipients during each of the time periods in which these phenomena might have occurred (see Exhibits 4 and 5).[5] The most frequently mentioned explanations for stopping out or studying part-time were insufficient financial means, feeling unsure of direction and/or academic goals, family or personal reasons, and "wanting to work".

Insufficient financial means was the most frequently mentioned, in particular, as a reason for studying part-time. Being unsure of academic goals was always a strong explanation for taking time out, but was not strong for graduate students as a reason for studying part-time. By the time these individuals were enrolled in a graduate program, they knew their direction. Financial difficulties or family/personal reasons contributed more to their decision to study part-time.

Financial Assistance

Within this group of variab es are the amount of the Indian Education Fellowship award, the total cost of schooling, and the sources and types of other financial assistance for which recipients applied. The data on award amount from the Fellowship program show that:

- Award amount. The majority of undergraduate award amounts (58%) fell into the category of $1,001 to $5,000; graduate student awards were higher, with most (62%) between $5,001 and $15,000.

The difference in amount between undergraduate and graduate awards is important to note, as it suggests that, should ED wish to increase the number of award recipients, it would be possible to

---

[4]Note that some recipients took time out at more than one point in their schooling.

[5]In creating their explanations, recipients ranked their top three reasons for taking time out/studying part-time. A rating was assigned to each reason such that an individual's primary reason was given three points, his or her second reason two points, and the third reason one point, and the points were summed across all recipients answering the question. Thus, a higher number on the exhibit implies greater importance of a factor.

EXHIBIT 4

Rating of Reasons for Taking Time Out From Schooling*

A. Undergraduates

	Between High School and College	In College
Number in Analysis	8	25
1. Insufficient financial means	11	38
2. Difficulty with academic material	0	12
3. Unsure of direction, academic goals	12	25
4. Institution too large/small	0	1
5. Disliked institution for other reasons	0	8
6. Wanted to work	7	25
7. Family or personal reasons	8	40
8. Lack of support group, role models	5	6
9. Housing problems	0	2
10. Health problems	0	5
11. Other	4	9

B. Graduate Students

	Between High School and College	In College	Between College and Grad. School	In Graduate School
Number in Analysis	38	47	133	21
1. Insufficient financial means	83	102	111	39
2. Difficulty with academic material	7	8	0	4
3. Unsure of direction, academic goals	44	44	52	7
4. Institution too large/small	0	12	2	0
5. Disliked institution for other reasons	4	8	0	0
6. Wanted to work	45	37	126	40
7. Family or personal reasons	47	69	64	43
8. Lack of support group, role models	25	32	12	2
9. Housing problems	4	12	2	1
10. Health problems	0	10	1	7
11. Other	16	11	29	6

*In creating their explanations, recipients ranked their top three reasons for taking time out/studying part-time. A rating was assigned to each reason such that an individual's primary reason was given three points, his or her second reason two points, and the third reason one point, and the points were summed across all recipients answering the question. Thus, a higher number on the exhibit implies greater importance of a factor.

EXHIBIT 5

Rating of Reasons for Studying Part-time*

A. Undergraduates

	In College
Number in Analysis	15
1. Insufficient financial means	35
2. Difficulty with academic material	9
3. Unsure of direction, academic goals	16
4. Institution too large/small	1
5. Disliked institution for other reasons	0
6. Wanted to work	17
7. Family or personal reasons	17
8. Lack of support group, role models	0
9. Housing problems	0
10. Health problems	0
11. Other	11

B. Graduate Students

	In College	In Graduate School
Number in Analysis	29	19
1. Insufficient financial means	77	54
2. Difficulty with academic material	10	8
3. Unsure of direction, academic goals	16	5
4. Institution too large/small	1	0
5. Disliked institution for other reasons	1	3
6. Wanted to work	27	31
7. Family or personal reasons	43	22
8. Lack of support group, role models	12	5
9. Housing problems	5	2
10. Health problems	1	4
11. Other	12	0

*In creating their explanations, recipients ranked their top three reasons for taking time out/studying part-time. A rating was assigned to each reason such that an individual's primary reason was given three points, his or her second reason two points, and the third reason one point, and the points were summed across all recipients answering the question. Thus, a higher number on the exhibit implies greater importance of a factor.

alter the percentage of undergraduates receiving the Fellowship. It may be possible to finance the education of two or three undergraduates for the same amount it would cost to finance one graduate student.

It is also important to note that the average award amount has changed substantially over the five years under study. The mean awards for undergraduates have increased in the following fashion: 1985--$3,226; 1986--$3,448; 1987--$5,942; 1988--$9,503; and 1989--$9,176. The 1989 mean represents an increase of 184 percent over the 1985 mean. The awards for graduate students have progressed from $8,192 in 1985 to $9,068 in 1986 to $10,878 in 1987 to $12,175 in 1988, and $13,704 in 1989. The increase in these awards from 1985 to 1989 is 67 percent. Undergraduate awards are increasing at a faster rate than graduate awards, though they tend still to be below the graduate student amounts.

The differences in undergraduate and graduate award amounts are, of course, reflected in the different costs of education at these two levels:

- Cost of schooling. Most of the institutions attended by undergraduates (73%) cost between $1,001 and $10,000; the institutions attended by graduate students usually cost more than $10,000 (72%).

In attempting to meet the costs of schooling, many Fellowship recipients reported applying for other sources and types of financial aid[6]:

- Other sources of aid. About half of the recipients (51%) wrote on their applications that they had applied for sources of financial aid other than the Indian Education Fellowship. Of these, most had applied for aid from at least one Federal program (68%) and at least one source of grants (91%).

---

[6]Data in the files on other sources of financial aid were incomplete. If an applicant left this question blank, it was unclear whether he or she had not applied for aid or simply hadn't recorded the application. If something was written down, it was not clear whether it was aid the student thought of applying for, had applied for, or had already been awarded. With these caveats, we report source and type of aid (as recorded on the application form). However, we do not discuss amount. Applications for the Fellowship submitted in January or February are likely to predate most awards and, consequently, are unlikely to be correct with regard to amount, even when they are accurate on sources of additional funding applied for.

Use of Support Services

The questionnaire for recipients requested information on the individual's use of a list of support services (given that they were available from the institution). The data show that Fellowship recipients were modest in their demands upon institutional services:

- Number of support services used. The majority of recipients reported using zero to three support services during the time they received a Fellowship. Only 41 percent of undergraduates and 37 percent of graduate students made use of more than three services.

- Specific support services used. The most frequently used services-and those used by 50 percent or more of undergraduate and graduate recipients--were association with a nearby Indian community (78%), organizations for minority students (70%), and an administrative office for minorities (61%).[7]

Outcomes

Finally, there are three clear results on outcomes for recipients:

- Degree completion. As of March/April 1990, 41 percent of undergraduates and 46 percent of graduate student recipients had completed their degrees. Only 26 percent of undergraduates and 20 percent of graduate students had left prior to completion, with the remaining students still enrolled. In other words, 74 percent of undergraduates and 80 percent of graduate students were enrolled in good standing or had completed their programs.

- Employment. Among those recipients who were no longer enrolled in school, most were currently employed and had spent three months or less unemployed since leaving school. That is, 59 percent of undergraduates were "continuously" employed, as were 85 percent of graduate students.

- Job involvement with the Indian community. Among employed recipients, about 60 percent had at least one job that involved them with members of the Indian community.

Additional information from the questionnaire can extend our understanding of the outcomes for recipients. In the area of educational outcomes, items on the questionnaire explored the further educational opportunities taken by undergraduate recipients and, for all

[7]In a later section of this report (Description of Institutions Attended by Recipients), we present data on the availability of services.

recipients not currently enrolled in an educational program, the reasons why they had elected not to enroll. Of the 64 undergraduates who returned the questionnaire and were no longer enrolled in their undergraduate program, 25 (38%) had elected to continue their education in a graduate program.

The 44 undergraduates and 113 graduate students who discussed their reasons for not currently being enrolled generally agreed that the major reason was that they had completed their program of study. Eighty percent of undergraduates and 86 percent of graduate students listed this reason. The only other reason cited by more than 10 undergraduates or graduate student recipients was an inability to enroll in a further program because of financial difficulties. Eleven undergraduate respondents (25%) and 19 graduate students (17%) cited this as an issue.

In the area of employment outcomes, there are additional findings from the questionnaire with regard to the field in which recipients chose to work. Among the 51 undergraduate recipients who reported on employment, 42 (82%) stated that their first job after leaving school was directly in their field of study or in a related field. Among the 112 graduate student recipients, 106 (95%) claimed to have found jobs in their field or a related field. Thus, Indian Education Fellowship recipients are not only finding employment, but also have located jobs within their fields of study.

Summary

Arguably the most important of these findings are the ones on outcomes for recipients in the areas of degree completion, employment, and job involvement with the Indian community. Since the primary goal of the Fellowship program is to provide the financial support needed to ensure that Indian students graduate from their programs, it is critical to see that this goal has been achieved: Nearly three-quarters of undergraduate and four-fifths of graduate student recipients completed their programs of study or were still enrolled as of spring 1990. Since the

secondary goals are to ensure a stable job environment and to encourage continued involvement with the Indian community, it is also important to note that these goals were frequently achieved: Over three-quarters of the recipients who have left school have been continuously employed; and about 60 percent have been involved with the Indian community in at least one of their professional jobs.

The Relationship Between Recipient Characteristics and Outcomes

Exhibits 6, 7, and 8 display the results of multivariate analyses predicting the three major outcomes variables: degree completion, employment, and job involvement with the Indian community. For the purposes of these tables, the outcome variables are defined as follows:

- "Degree completion" includes all recipients who have received a degree in the program of study funded by the Indian Education Fellowship or who are currently enrolled in that program;
- The positive employment outcome, defined as "0 to 3 months unemployed", is constructed by evaluating the employment status of recipients who returned the questionnaire. If the recipient was unemployed for three months or less of the time elapsed since leaving school, he/she is considered to be continuously employed;[8]
- "Job involvement with the Indian community" is indicated by a recipient who states that he/she is employed on a reservation; employed by a tribe, band, group, or Indian organization; has a job that involves direct contact with a predominantly Indian population; or has a job that provides services or products, or promotes advocacy issues relevant to Indians. Involvement is coded as occurring if such involvement was true of any of the jobs held by a recipient.

[8]This number of months was selected to accommodate the relatively large numbers of lawyers and doctors in the sample. Lawyers tended to be without work for up to three months after graduation from law school in order to study for and take the bar exam. Doctors tended to graduate from medical school in late April or May, but did not enter internship programs until July. Some number of months of unemployment was required for these professionals to take the next step in their careers.

EXHIBIT 6

Probit Results Predicting Degree Completion

A. Undergraduate

Variable	Coefficient	Std. Error	t	Prob.	Mean
Degree completion					.77
Male	-.34	.27	-1.27	.21	.51
Single	-.42	.65	-.65	.52	.91
Have child	-.14	.68	.20	.84	.13
Age	.02	.04	.49	.63	21.67
Changed schools	.22	.35	.64	.52	.29
Took time out	-1.09	.37	-2.91	.01*	.36
Engineering	-.37	.34	1.11	.27	.47
Natural resources	-.32	.37	-.85	.39	.26
Award amount (000s)	.02	.05	.36	.72	4.55
No. years of award	.75	.21	3.52	.00*	1.75
Constant	.35	1.02	.34	.73	1

Number of observations = 163
Chi square (10) = 35.41 (p<.001)

B. Graduate Students

Variable	Coefficient	Std.Error	t	Prob.	Mean
Degree completion					.81
Male	-.15	.20	-.77	.44	.51
Single	.08	.22	.35	.73	.65
Have child	-.55	.24	-2.29	.02*	.40
Age	.02	.02	1.07	.28	30.82
Changed schools	-.15	.19	-.78	.44	.41
Took time out	-.24	.26	-.94	.35	.69
Engineering	-.14	.59	-.24	.81	.02
Natural resources	-.88	.45	-1.97	.05*	.04
Law	.39	.30	1.28	.20	.26
Medicine	.85	.38	2.24	.03*	.22
Education	.14	.31	.44	.66	.20
Psychology	.32	.34	.94	.35	.13
Award amount (000s)	.01	.02	.69	.49	10.37
No. years of award	.10	.11	.87	.39	1.90
Constant	.28	.64	.44	.66	1

Number of observations = 278
Chi square (13) = 34.57 (p<.01)

*Statistically significant at p<.05.

EXHIBIT 7

Probit Results Predicting Employment:
Graduate Students

Variable	Coefficient	Std.Error	t	Prob.	Mean
Employment					
Male	-.15	.41	-.38	.71	.50
Single	-.47	.48	-.97	.34	.64
Have child	-.52	.47	-1.11	.27	.41
Age	-.03	.04	-.71	.48	29.82
Changed schools	.64	.45	1.42	.16	.29
Took time out	-.72	.62	-1.16	.25	.76
Engineering	--	--	--	--	--
Natural resources	-.94	.80	-1.17	.24	.05
Law	-.02	.55	-.04	.97	.39
Medicine	-.05	.75	-.07	.95	.18
Education	1.01	.68	1.50	.14	.17
Psychology	1.15	.77	1.50	.14	.12
Award amount (000s)	.00	.04	-.00	.99	9.35
No. years of award	.60	.24	2.52	.01*	2.12
Constant	1.59	1.40	1.14	.26	1

Number of observation = 106
Chi square (13) = 22.17 ($p<.06$)

*Statistically significant at $p<.05$.

EXHIBIT 8

Probit Results Predicting Involvement with Indian Community: Graduate Students

Variable	Coefficient	Std.Error	t	Prob.	Mean
Involvement with Indian community					
Male	.00	.33	.00	.99	.51
Single	.24	.38	.64	.52	.64
Have child	.37	.44	.84	.40	.41
Age	.06	.04	1.40	.17	29.72
Changed schools	-.23	.31	-.74	.46	.29
Took time out	-.74	.42	-1.74	.09	.77
Engineering	.93	1.02	.91	.37	.02
Natural resources	2.09	.87	2.41	.02*	.05
Law	1.52	.53	2.88	.01*	.37
Medicine	.51	.63	.82	.41	.18
Education	1.85	.64	2.88	.01*	.16
Psychology	1.63	.65	2.52	.01*	.12
Award amount	.00	.03	-.26	.80	9.54
No. years of award	-.29	.18	-1.59	.12	2.12
Constant	-1.50	1.22	-1.22	.22	1

Number of observations = 110
Chi square (14) = 35.23 ($p<.01$)

*Statistically significant at $p<.05$.

To evaluate the relationships of recipient characteristics and these outcomes, we conducted multivariate analyses through the use of the probit technique. This regression-like test examines the relationship of a group of variables (the "predictors") with a single outcome that is in the form of a yes/no or good/bad variable (e.g., "job involves work with the Indian community/job does not). The results demonstrate the relative strength of the various recipient characteristics in predicting the outcomes.

In order to maximize the number of recipients in the analyses, it was necessary to eliminate those variables with relatively large amounts of missing data. These included a number of variables for which file data was often lacking (i.e., family income for financially dependent and independent recipients; grade point averages in high school, college, and graduate school; SAT scores; instances of studying part-time; and annual cost of schooling) and several variables which were included on the recipient questionnaire (number of support services and presence of each specific support service).

Degree Completion--Undergraduates

The probit analysis shown on Exhibit 6 isolated two statistically significant predictors of degree completion for undergraduates: taking time out from schooling; and number of years of receipt of the Fellowship. Holding all other variables constant, undergraduate recipients who took time out were less likely than those who did not take time out to complete their programs of study or still be enrolled ($t=-2.91$, $p<.01$). And, the greater the number of years that undergraduates received the Fellowship, the more likely they were to complete their degrees or still be enrolled in good standing ($t=3.52$, $p<.001$).

Recipients provided several major reasons for taking time out from their schooling. As cited above, they frequently listed insufficient financial means, lack of direction or academic goals, family or personal reasons, and that they "wanted to work". It appears from the probit equation

that once they elect to stop out, other things being equal, they are more likely not to return and complete the degree than are those who never stop out.

Further understanding of the relationship of years of recipiency to degree completion may simply come from the knowledge that the higher the number of years of receipt of the Fellowship, the further along one is in the program. People close to graduation are more likely to finish the course than those farther away.

Degree Completion--Graduate Students

In the probit model predicting degree completion for graduate students (Exhibit 6), the following variables are significantly related to the outcome: having at least one child; and studying in the fields of medicine or natural resources. All other factors being equal, graduate student recipients who had at least one child were less likely to complete their degree than those without children; recipients in the field of medicine were more likely to complete their program than those in the fields of business and natural resources; and recipients in the field of natural resources were less likely to complete than those in business, medicine, law, and psychology.

There are two major implications of these findings. First, it would appear that recipients with children are in need of special support. Not only do they have additional financial obligations, but also they have time commitments regarding family members. Assistance in meeting their obligations may be necessary if they are to be able to complete their programs of study at the same rate as those without children.

Second, the findings on differences in completion according to field of study are provoking. Program managers may wish to examine the courses of study elected by students in natural resources to see what sorts of supports could assist these individuals to complete their programs. Or, program managers may elect to support more students in the fields where

completion rates are high (e.g., medicine) and to weigh carefully the support of students in the fields where completion rates are low (e.g., natural resources).

Employment--Undergraduates

A meaningful probit analysis could not be conducted with these data because of the small sample size. Only 51 undergraduates supplied data on employment. Though all had complete information, the number is insufficient for an accurate relating of nine predictors to the outcome.

Employment--Graduate Students

The probit equation predicting employment for graduate students (Exhibit 7) did not produce a significant X^2 value (X^2=22.17, $p<.06$), though the probability level associated with the equation was close to statistical significance. The lack of such significance, in this case, is probably due to the fact that relatively few of the recipients who returned the questionnaire (and, therefore, supplied data on employment) had been unemployed for very long. Only 17 (16 percent) reported gaps in employment of more than three months. Among these were two individuals who reported their jobs as "mothers", and several lawyers who had taken longer than the three months to begin a job. The fact of the matter is that individuals who have received the Indian Education Fellowship have subsequently succeeded at finding employment and staying employed.

The one significant variable in the equation is the number of years of receipt of the Indian Education Fellowship award ($t=2.52$, $p<.01$). The higher the number of years the individual was a Fellow, the greater the likelihood of his or her being unemployed for only a short time. It is also true that the higher the number of years of receipt, the higher is the probability that the person completed his or her program of study. Number of years of receipt of the Fellowship may be a proxy for this index of degree completion.

Because of the weak X^2 value and the lack of clarity in the meaning of the one significant variable in the equation. these results do not support any action on the part of program managers or policy makers.

Job Involvement With the Indian Community--Undergraduates

The small sample size of undergraduates (51) who were employed and could comment on involvement with the Indian community also precluded a probit analysis of this outcome variable.

Job Involvement With the Indian Community--Graduate Students

The probit analysis for graduate students (Exhibit 8) showed that the variable, "field of study", is strongly related to involvement with the Indian community. The size of the coefficient reflects the degree of likelihood of involvement with the Indian community. From the greatest degree of likelihood to the least (holding all other variables constant), the fields are ranked as follows:

1. Natural resources;
2. Education;
3. Psychology;
4. Law;
5. Engineering;
6. Medicine; and
7. Business.

Pairwise tests comparing coefficients showed that the group of recipients in each of the top four fields in the hierarchy is significantly more likely to be involved than the next group in the hierarchy, but the groups of recipients in engineering, medicine, and business are not significantly different from each other in the likelihood of involvement. That is, holding other variables constant, recipients in natural resources are significantly more likely than those in education to be involved; those in education are significantly more likely to be involved than those in psychology, etc.

If we consider a single male recipient, age 25, with no children, who never changed schools or took time out, who received an award of $9,500 in the second of the two years he was a recipient, we can determine the different probabilities of his working in a job that involves the Indian community, assuming that he is first in one field, then in another. The probabilities of involvement are as follows:

1. Natural resources--98%;
2. Education--96%;
3. Psychology--94%
4. Law--93%
5. Engineering--81%
6. Medicine--68%; and
7. Business--48%.

One issue with regard to these results is that involvement may not be equally easy for recipients in each of the fields. For example, most of the individuals in the field of medicine who graduated in the time span from 1985 to 1989 are still involved with internships and residencies. These frequently occur in city hospitals. Recipients may not have much opportunity to continue their training--particularly in specialties--in a rural or Indian hospital. There may also be less opportunity for engineers and those with masters degrees in business to acquire employment in areas with a high concentration of Indians. A fairer examination of the relationship of field of study and involvement with the Indian community would require perhaps a 10-year follow-up of recipients, allowing more time for training to end and careers to be established. One might also question recipients on whether or not they would like to be involved more with the Indian community and what factors impede such involvement.

Description of Institutions Attended by Recipients

Exhibit 9 lists the 178 institutions attended by Fellowship recipients, displaying separately the numbers of undergraduate (U) and graduate (G) student recipients who enrolled. The

EXHIBIT 9

Number of Recipients Attending Each Institution

Institutions	Number of IEF Recipients		Institutions	Number of IEF Recipients		Institutions	Number of IEF Recipients	
	U	G		U	G		U	G
Harvard University	0	26	North Carolina State University	19	2	New Mexico, University of	2	10
Oklahoma, University of/Norman	7	6	North Carolina, University of/Chapel Hill	7	5	Oklahoma, Univ of/Health Sci Ctr.	0	12
Oklahoma State University	7	5	Arizona State University	3	8	North Dakota, University of	1	10
Pembroke State University	10	0	Stanford University	3	6	Wisconsin, University of/Madison	2	7
Northeastern State University	5	3	California, University of/Berkeley	1	6	Cornell University	2	5
Oregon, University of	1	6	Washington, University of	3	4	California, University of/Los Angeles	0	6
Minnesota, Univ of/Minneapolis	0	6	Montana State University	3	3	Auburn University/Auburn	5	0
Dartmouth College	5	0	Georgetown University	0	5	Michigan, University of/Ann Arbor	0	5
Montana, University of	2	3	Tulsa, University of	1	4	Utah State University	0	5
Western Washington University	2	3	Colorado State University	0	4	Colorado, University of/Boulder	0	4
Minnesota, University of/Duluth	1	3	North Carolina, University of/Greensboro	2	2	South Dakota, University of	1	3
Washington State University	0	4	Washington University	1	3	Arizona, University of	0	3
Brigham Young University	2	1	California, University of/Davis	0	3	Campbell University	0	3
East Carolina University	3	0	George Washington University	0	3	Gonzaga University	1	2
North Dakota State University	2	1	Oklahoma City University	0	3	Pennsylvania State Univ/Univ Park	0	3

BEST COPY AVAILABLE

EXHIBIT 14

Degree of Influence of Fellowship

A. On Decision to Attend College or Graduate School

Degree of Influence	Undergraduates		Grad. Students	
	#	%	#	%
Number in Analysis	105		174	
Very much	40	38%	95	55%
Somewhat	24	23%	23	13%
Very little	13	12%	17	10%
Not at all	28	27%	39	22%

B. On Decision to Study in Chosen Field

Degree of Influence	Undergraduates		Grad. Students	
	#	%	#	%
Number in Analysis	101		172	
Very much	18	18%	42	24%
Somewhat	18	18%	15	9%
Very little	27	27%	21	12%
Not at all	38	37%	94	55%

EXHIBIT 9 (Continued)

Number of Recipients Attending Each Institution

Institutions	Number of IEF Recipients		Institutions	Number of IEF Recipients		Institutions	Number of IEF Recipients	
	U	G		U	G		U	G
Southern California, University of	2	1	Texas A & M University/College Station	1	2	William Mitchell College of Law	0	3
Wyoming, University of	2	1	Alabama, University of/Birmingham	0	2	Alabama, University of/Huntsville	2	0
Alaska, University of/Fairbanks	1	1	Boston University	0	2	California, University of/San Diego	0	2
California, Univ of/San Francisco	0	2	Chicago, University of	1	1	Colorado, University of/Denver	1	1
CUNY/Queens College	0	2	Eastern Washington University	1	1	Emory University	0	2
Evergreen State College	1	1	Fort Lewis College	2	0	Humboldt State University	2	0
Kansas State University	0	2	Kansas, University of	2	0	Lewis and Clark College	0	2
Massachusetts Institute of Tech	2	0	Mayo Medical School	0	2	Michigan State University	1	1
Missouri, University of/Columbia	0	2	North Alabama, University of	2	0	North Carolina Central University	0	2
North Carolina, Univ of/Charlotte	2	0	Northern Montana College	2	0	Notre Dame, University of	1	1
Old Dominion University	1	1	Pennsylvania, University of/Philadelphia	0	2	Southwestern Oklahoma State University	1	1
Texas, University of/Austin	1	1	Tuskegee University	0	2	Utah, University of	1	1
Wichita State University	1	1	Yale University	0	2	Andrews University	0	1
Appalachian State University	0	1	Arkansas, University of/Fayetteville	0	1	Baylor University	0	1
Birmingham-Southern College	1	0	California Institute of Integral Studies	0	1	California Institute of Technology	1	0

EXHIBIT 9 (Continued)

Number of Recipients Attending Each Institution

Institutions	Number of IEF Recipients		Institutions	Number of IEF Recipients		Institutions	Number of IEF Recipients	
	U	G		U	G		U	G
California School of Prof Psych	0	1	California State University/Chico	1	0	California State University/Sacramento	0	1
California, University of/Irvine	1	0	Cameron University	1	0	Case Western Reserve University	1	0
Catawba College	1	0	Charleston, College of	1	0	Claremont Graduate School	0	1
College of St Scholastica	1	0	College of William and Mary	0	1	Columbia University	0	1
Connecticut, University of	1	0	Converse College	1	0	CUNY/Bernard Baruch College	0	1
Dallas, University of	1	0	Denver, University of	0	1	Dickinson State College	1	0
Eastern Montana College	0	1	Florida Institute of Technology	1	0	Forest Institute of Professional Psych	0	1
Freed-Hardeman College	1	0	Georgia Institute of Technology	1	0	Georgia State University	0	1
Georgia, University of	0	1	Golden Gate University	0	1	Heritage College	0	1
Houston, University of/Clear Lake	0	1	Idaho, University of	0	1	Indiana University/Bloomington	0	1
Iowa State University	1	0	Lake Superior State College	0	1	Louisiana State University/Hebert Laws	0	1
Maine, University of/Orono	1	0	Marquette University	0	1	Massachusetts, University of/Amherst	1	0
Medical College of Georgia	0	1	Medical College of Wisconsin	0	1	Mesa Community College	1	0
Milwaukee School of Engineering	1	0	National College of Chiropractic	0	1	National University	0	1
Nebraska, University of/Lincoln	1	0	Nebraska, University of/Med Ctr	0	1	Nevada, University of/Reno	0	1

EXHIBIT 9 (Continued)

Number of Recipients Attending Each Institution

Institutions	Number of IEF Recipients		Institutions	Number of IEF Recipients		Institutions	Number of IEF Recipients	
	U	G		U	G		U	G
North Carolina A&T University	1	0	Northeastern Oklahoma A&M	1	0	Northern Arizona University	0	1
Northern Oklahoma College	1	0	Nova University	0	1	Ohio State University	1	0
Oklahoma Coll of Osteopathic Med	0	1	Oregon State University	0	1	Pacific, University of the	0	1
Palomar Community College	1	0	Pennsylvania State/Hershey Med Ctr	0	1	Pepperdine University	0	1
Pittsburg State University	0	1	Princeton University	1	0	Purdue University/West Lafayette	1	0
Samford University	1	0	San Diego State University	0	1	San Jose State University	0	1
Seattle Pacific University	1	0	Seattle University	0	1	Shaw University	1	0
South Alabama, Univ of/Mobile	0	1	South Dakota State University	1	0	Southern Connecticut State University	1	0
Southern Il, Univ of/Carbondale	0	1	Spokane Community College	1	0	St Bonaventure University	0	1
St Cloud State University	0	1	St Lawrence University	1	0	St Norbert College	1	0
St Olaf College	1	0	St Thomas University	0	1	SUNY/Health Science Ctr at Syracuse	0	1
SUNY/Plattsburgh	1	0	Syracuse University	0	1	Thomas Jefferson University	0	1
Tufts University	0	1	Vanderbilt University	1	0	Virginia, University of	1	0
Wayne State University	0	1	Weber State College	0	1	Wenatchee Valley College	1	0
West Florida, University of	1	0						

institution attended by the largest total number of recipients, Harvard University, is listed first. It is important to note that there are only nine institutions attended by more than 10 recipients. More than half of the institutions (53%) were attended by only one recipient. By taking a snapshot in time, we have one sample of institutions attended by recipients. But the relative frequency of institutions attended by only one recipient implies that a snapshot taken of a different time period would be likely to focus on a different set. The relative frequency also implies that any dissemination of information about the program must be widespread; there are not a limited few institutions involved with the program, but a broad range. New institutions appear for each new year's recipients.

Exhibit 10 summarizes the data on institutions separately for undergraduate and graduate student recipients as well as showing the distribution of characteristics for the total group of institutions. A total of 95 different institutions were attended by the 180 undergraduate recipients and 123 by the 305 graduate student recipients. The average number of undergraduate recipients who attended each institution is 1.9; the average number of graduate student recipients is 2.5. The undergraduates have been particularly dispersed across institutions.

In order to describe the institutions, we divide the descriptors into three sets: characteristics of the school (i.e., type of institution, control, enrollment, faculty, tuition); support services offered, with particular focus on services for minorities and Indians; and outcomes for recipients who attended the institutions.

Characteristics of Institutions

In terms of type of institution and source of control, the following findings emerged:

- Control. About two-thirds of the institutions are public, 70 percent of those attended by undergraduates and 63 percent attended by graduate students. None of the institutions are Indian-controlled.

- Type. Nearly all of the institutions are universities offering both undergraduate and graduate programs. This type represented 89 percent of undergraduates' institutions and 98 percent of graduate recipients' institutions.

EXHIBIT 10

Frequencies of Occurrence of Descriptors of Institutions Attended by Recipients

	Undergraduates' Institutions		Grad. Students' Institutions		Total	
	#	%	#	%	#	%
Number of Institutions	95		123		178	
Institutional Control						
Public	66	70%	78	63%	113	63%
Private non-profit	29	30%	45	37%	65	36%
Indian-Controlled						
Yes	0	0%	0	0%	0	0%
No	95	100%	123	100%	178	100%
Type of Institution						
Less-than-four-year college	6	6%	0	0%	6	3%
Four-year college, no grad. school	5	5%	0	0%	5	3%
University	84	89%	120	98%	164	92%
Professional school	0	0%	3	2%	3	2%
Enrollment - Full-time Undergraduates						
Under 1,000	8	8%			20	12%
1,001 - 5,000	39	41%			61	36%
5,001 - 10,000	21	22%			41	24%
10,001 - 20,000	18	19%			36	21%
Over 20,000	9	10%			12	7%
Enrollment - Full-time Graduates						
Under 1,000			52	43%	78	48%
1,001 - 5,000			58	48%	73	45%
Over 5,000			11	9%	12	7%
Percent Minority Undergraduates						
Under 5%	17	18%			24	14%
5 - 10%	30	32%			53	31%
10 - 15%	29	30%			40	24%
15 - 25%	13	14%			33	20%
Over 25%	6	6%			19	11%
Percent Minority Graduate Students						
Under 5%			8	7%	14	9%
5 - 10%			21	17%	26	16%
10 - 15%			18	15%	22	14%
15 - 25%			43	35%	54	34%
Over 25%			31	26%	44	27%
Percent Indian Undergraduates						
Under 1%	54	62%			109	70%
1 - 2%	16	18%			23	15%
Over 2%	17	20%			23	15%

EXHIBIT 10 (Continued)

Frequencies of Occurrence of Descriptors of Institutions Attended by Recipients

	Undergraduates' Institutions		Grad Students' Institutions		Total	
	#	%	#	%	#	%
Percent Indian Graduate Students						
Under 1%			85	77%	109	79%
1 - 2%			12	11%	13	9%
Over 2%			13	12%	17	12%
Percent Minority Faculty						
Up to 5%	24	26%	14	12%	33	19%
5 - 10%	43	46%	64	52%	84	47%
10 - 15%	20	21%	28	23%	39	22%
15 - 25%	4	4%	12	10%	14	8%
Over 25%	3	3%	4	3%	7	4%
Percent Indian Faculty						
None	33	35%	40	33%	64	36%
.01 - 1%	36	38%	55	45%	73	41%
1 - 2%	14	15%	17	14%	24	14%
Over 2%	11	12%	10	8%	16	9%
In-State Tuition - Undergraduates						
Up to $2,500	58	70%			97	66%
$2,501 - $5,000	3	4%			8	5%
$5,001 - $10,000	12	14%			25	17%
Over $10,000	10	12%			17	12%
In-State Tuition - Graduate Students						
Up to $2,500			66	66%	91	68%
$2,501 - $5,000			11	11%	11	8%
$5,001 - $10,000			14	14%	18	14%
Over $10,000			9	9%	13	10%
Number of Support Services for All Students						
1 - 3	4	4%	7	6%	11	6%
4 - 6	40	43%	46	38%	70	40%
7 - 8	50	53%	69	56%	95	54%
Presence of School Support Services						
Remedial instruction programs	69	73%	86	70%	126	72%
Academic/Career counseling	94	100%	119	98%	173	98%
Employment services	87	93%	111	91%	159	90%
Placement services	92	98%	115	94%	167	95%
Assistance - visually impaired	70	74%	90	74%	127	72%
Assistance - hearing impaired	68	72%	86	70%	124	70%
Access - mobility impaired	89	95%	113	93%	162	92%
On-campus day care	29	31%	49	40%	63	36%

EXHIBIT 10 (Continued)

Frequencies of Occurrence of Descriptors of Institutions Attended by Recipients

	Undergraduates' Institutions		Grad Students' Institutions		Total	
	#	%	#	%	#	%
Number of Special Support Services for Minority Students						
1 - 4	14	15%	15	12%	27	15%
5 - 7	42	44%	59	48%	84	47%
8 - 10*	39	41%	49	40%	67	38%
Presence of Minority Support Services						
Dean of minority affairs	37	39%	56	46%	75	42%
Admin. office for minority affairs	63	66%	89	72%	123	69%
Faculty initiative for minorities	64	67%	93	76%	127	71%
Alumnae initiative for minorities	51	54%	62	50%	87	49%
Multicultural programs	89	94%	110	89%	161	90%
Student organizations	90	95%	120	98%	170	96%
Minority orientation	60	63%	76	62%	105	59%
Tutoring program/summer program	68	72%	89	72%	125	70%
Identifying financial aid sources	71	75%	101	82%	139	78%
Number of Special Support Services for Indians						
None	23	24%	34	27%	50	28%
1 - 2	28	30%	50	41%	68	38%
3 or more[1]	44	46%	39	32%	60	34%
Presence of Services for Indians						
Programs on cultural heritage	59	62%	65	53%	94	53%
Association with nearby community	55	58%	58	47%	87	49%
Involvement - national Indian org.	48	51%	64	52%	84	47%
Number of Sources of Funding for Indian Programs						
0	51	54%	65	53%	100	56%
1 - 2	32	34%	41	33%	58	33%
3 or more	12	12%	17	14%	20	11%
Degree Completion						
Most complete degree	68	72%	90	73%	129	73%
Most leave prior to completion	26	28%	33	27%	48	27%

*The total number of support services exceeds the number of specific services listed below because some institutions described "other" services not on these lists. Only one "other" service was included in the count.

EXHIBIT 10 (Continued)

Frequencies of Occurrence of Descriptors of Institutions Attended by Recipients

	Undergraduates' Institutions		Grad Students' Institutions		Total	
	#	%	#	%	#	%
Employment						
Most unemployed less than 3 months	22	58%	56	84%	69	76%
Most unemployed more than 3 months	16	42%	11	16%	22	24%
Job Involvement with Indian Community						
Most involved	19	50%	38	56%	49	53%
Most not involved	19	50%	30	44%	43	47%

To discuss enrollment, we catalogue first the details of undergraduate institutions and then turn to the institutions attended by graduate student recipients:[9]

- Undergraduate enrollment. The number of full-time undergraduates ranged most often from 1,001 students to 10,000 (see Exhibit 10). Forty-one percent of the undergraduate institutions enrolled 1,001 to 5,000 students and another 22 percent from 5,001 to 10,000.

- Percent minority students. Most of the institutions (62%) included from 5 to 15 percent minority students among their full-time undergraduates, though six percent had over 25 percent minority enrollment.

- Percent Indian students. The majority (62%) had less than one percent Indians, though 20 percent of the institutions did have more than two percent Indians.

Thus, undergraduate recipients attended medium to large schools with a distinct minority presence, but without a high percentage of Indians.

Graduate student recipients attended somewhat different programs:

- Graduate student enrollment. Most of the graduate programs (91%) enrolled up to 5,000 students. Forty-three percent enrolled under 1,000 graduate students.

- Percent minority students. Among the full-time graduate students, the majority of institutions (61%) had enrollments of minorities in excess of 15 percent.

- Percent Indian students. The enrollment of Indians was generally less than one percent of the graduate students (77% of the time).

So, graduate student recipients were in somewhat smaller peer groups than undergraduates and were working among a higher percentage of minority students. But they, too, had few Indian colleagues.

The size of the minority faculty at undergraduate and graduate institutions was usually between five and 15%, but the representation of Indians on the faculty was very small:

- Percent minority faculty. Sixty-seven percent of undergraduate institutions had from five to 15 percent minority faculty; 75 percent of graduate student institutions fell into this range.

---

[9]We use the past tense in the remaining discussion of institutional characteristics because most of the measures (those from IPEDS) reflect the state of the schools in 1986.

- Percent Indian faculty. About three-quarters of the institutions had less than one percent Indian faculty (73% of undergraduate and 78% of graduate institutions). This group includes the one-third of institutions that had no Indian faculty at all (35% of undergraduate and 33% of graduate institutions).

In terms of role models, then, most institutions had minority faculty, but many had no Indian faculty.

Of course, we are not able--through these statistics--to assess the degree to which the minority faculty or Indian faculty were accessible to Fellowship recipients. We know the percentage of minority and Indian faculty in the whole of the institutions, but not specific to the recipients' program. An individual might be expected to benefit less from a strong minority presence, for example, if all minority faculty were in the Arts and Sciences and the recipient was in the Medical School.

As follows from the preponderance of public institutions among those attended by recipients, the amounts of in-state tuition were often relatively low:

- Tuition. For both undergraduate and graduate programs, the in-state tuition was usually under $2,500. This was true for 70 percent of the undergraduate institutions and 66 percent of the graduate ones.

Services Offered

IPEDS contains a list of eight support services that may by offered by an institution to all of its students. These include remedial instruction programs, academic/career counseling, employment services, placement services, assistance for the visually impaired, assistance for the hearing impaired, access for the mobility impaired, and on-campus day care. Each service can be checked as offered or not offered. For the purpose of consolidating the display of findings, the numbers and percentages on Exhibit 10 relating to these services differ from the displays for previously listed variables. For each service, the statistics represent the number and percentage of

institutions offering the service; we omit the number and percentage of those not offering the service. The following results are true for services to all students:

- Number of support services for all. Of the eight services listed, a majority of institutions (53% of undergraduate and 56% of graduate institutions) offered seven or eight.

- Presence of support services for all. The services offered by more than 90 percent of the institutions included academic/career counseling (98%), placement (95%), access for the mobility impaired (92%), and employment services (90%). The least frequently offered service was on-campus day care, a service of only 36 percent of institutions.

There are greater differences among institutions with regard to services for minority students and, especially, for Indian students.

- Number of support services for minorities. Nearly half of the institutions (47%) offered from five to seven of the 10 support services for minorities listed by our staff in the telephone interviews (the nine presented on Exhibit 10 plus "other").

- Presence of support services for minorities. Only two services were offered by more than 90 percent of the institutions: minority student organizations (96%); and multicultural programs (90%). Less than half of the institutions had a dean for minority affairs (42%) or an alumnae initiative for minorities (49%).

- Number of support services for Indians. About one-third of institutions (28%) offered no special support services for Indians; about one-third (38%) offered one to two services; about one-third offered three or more (34%).

- Presence of support services for Indians. About half of the institutions offered each of the three named support services: programs on cultural heritage (53%); association with a nearby Indian community (49%); and involvement with a national Indian organization (47%).

The numbers of support services appear relatively large, especially those offered for all students or for minority students. Although the percentages of institutions with extensive services for Indians was relatively smaller, it should be remembered that many of these institutions had relatively large numbers of minority students and few Indians students.

We asked institutions to report any sources of funding for special programs for Indians.[10] We defined such programs or services as those that were specially designed for Indian students, used primarily by Indian students, or that had large numbers of Indians participating. Most of the institutions (56%) had no funds for such programs; about one-third listed one to two programs; and the remainder (11%) had three or more sources. The most frequently named sources were Upward Bound (in particular) or the Trio programs (in general) and the Health Career Opportunity Program. The specific activities carried out with these monies involved such short-term events as lectures, one-day workshops, or week-long festivals, as well as long-term events such as a semester-long seminar series or a tutoring program.

One question that arises in an evaluation of institutional services is whether students are aware that a service is being offered. An institution might not publicize an offering very well or might have a service in name only--from a student's point of view. Because we asked recipients about the availability of some services on the questionnaire, we could compare their answers with those provided by the institution. Exhibit 11 displays the results of such a comparison. Each number represents the percentage of recipients who agreed with the institution that a service was--or was not--available.

Note that the level of agreement between recipients and institutions was not particularly high for most services. The mean percentage agreement was 72 percent for undergraduates, and 63 percent for graduate student recipients. Five of the eight services had less than 75 percent agreement for undergraduates; none was over 77 percent for graduate recipients. We have no reason to believe that the institutions were misinformed about their service offerings, and, where differences exist between recipients' and institutions' statements on the availability of services, it seems likely that recipients were the ones who were incorrect.

---

[10]This funding excludes scholarship, loans, and work study options for individual students, and includes funding for programs open to all students or all Indian students. Programs may be offered to high school students, college students, and/or graduate students.

EXHIBIT 11

Percent Agreement Between Recipients and Institutions on Availability of Services

Service	Undergraduates	Graduate Students
Orientation/Summer program	58	58
Tutoring/Remedial courses	69	56
Admin. minority office	58	55
Academic/Career counseling	87	72
Student jobs	75	64
Placement services	77	64
Organization for minorities	87	77
Association w/Indian community	67	56

Outcomes

In order to assess outcomes associated with an institution, we constructed measures of the proportion of recipients who completed their degree (or were still enrolled), the proportion who were unemployed for three months or less, and the proportion who were involved with the Indian community in at least one job. For most institutions, these are not strong measures. Only one or two recipients attended most institutions, and it is problematic to assign any institution a good/bad rating on the basis of a sample of students of this size. The ratings are dependent on the behavior of very few individuals and might be very different, if other or additional recipients were involved.

A second caveat about these measures concerns, specifically, the measures of employment and involvement with the Indian community. Relatively few institutions could even be coded on these measures (38 of 95 undergraduate institutions or 40%; and 67-68 of 123 graduate institutions or 54-55%). Once again, the behavior of only one recipient has tremendous power over the results.

With these caveats understood, we assigned a positive outcome to an institution (for purposes of display on Exhibits) if more than 50 percent of its recipients showed that positive outcome. For example, if two out of three recipients attending College A completed their degree programs or were still enrolled, College A was coded as "Most [recipients] complete degree". As shown on Exhibit 10:

- Degree completion. Nearly three-quarters of the institutions (73%) had more recipients completing degrees or in good standing than leaving without degree completion. These percentages are remarkably similar for the groups of undergraduate and graduate institutions.

- Employment. About three-quarters of the institutions (76%) had more recipients employed continuously following leaving school than experiencing unemployment for a period longer than three months. The percentage with positive employment scores was higher for institutions attended by graduate recipients (84%) than for institutions attended by undergraduate recipients (58%).

- Job involvement with the Indian community. Just over half of the schools (53%) had more recipients involved with the Indian community than not involved.

In general, the results on outcomes for institutions show that most institutions are accomplishing the work required of them. More recipients were able to complete their programs of study than were not; more obtained employment fairly quickly and remained employed than did not; and many were able to find jobs that involved them with the Indian community.

There were institutions that seemed to do exceptionally well at seeing recipients through to the completion of their programs of study, and there were a small group of institutions that seemed to do fairly poorly. The institutions (with at least three recipients) where 90 percent or more of recipients completed their degrees or were still enrolled include Auburn University (5 of 5 or 100%); Georgetown University (5 of 5 or 100%); Harvard University (25 of 26 or 96%); Washington University in St. Louis (4 of 4 or 100%); University of Montana (5 of 5 or 100%); Cornell University (7 of 7 or 100%); University of North Carolina at Chapel Hill (11 of 12 or 92%); North Carolina State (20 of 21 or 95%); University of Oklahoma Health Sciences Center (12 of 12 or 100%); University of Tulsa (5 of 5 or 100%); University of South Dakota (4 of 4 or 100%); and Utah State University (5 of 5 or 100%). These are a mixture of public and private schools that have medium to large enrollments and serve both undergraduate and graduate students.

The institutions at which 50 percent or more of recipients did not complete their programs (and the schools had more than three recipients) include the University of Minnesota (3 of 6 or 50% completed or were still enrolled); Montana State University (2 of 5 or 40%); Pembroke State (4 of 10 or 40%); and Western Washington University (2 of 5 or 40%). These institutions are all public, show a range in terms of student enrollment, and serve undergraduates and graduate students. There is no easily discernible characteristic that differentiates this group

(whose recipients did not do as well) from the former group of schools (whose recipients completed degrees or remained enrolled).

The answer to one further question on the recipient questionnaire provides some insight into the institutions' role, in this case in assisting the transition from school to work. Exhibit 12 shows the primary sources that recipients used to locate their first professional job. The first three categories suggest active roles for the institution (placement office, on-campus recruiter, college staff member). A total of 31 percent of the undergraduates and 23 percent of the graduate student recipients declared that one of these was the primary source they used to obtain their first job. About two-thirds of the recipients used non-institutional resources.

Graduate student recipients were quite likely to use a source not named on the questionnaire. These included having worked previously for the employer and being invited to return, having been approached by an employer without making an application to him/her, and identifying prospective employers and applying on one's own.

The Relationship Between Institutional Characteristics and Outcomes

In order to examine the relationship between institutional characteristics and outcomes for Fellowship recipients, we attempted to build regression models using institutional characteristics to predict the proportion of recipients with positive outcomes. In addition to the difficulties in adequately defining outcome variables, we experienced another serious difficulty: the sample size of institutions with complete data severely restricted our ability to build models. Only 73 institutions (of 95) could be used in building the model for undergraduate institutions dealing with the outcome of degree completion. The sample size of undergraduate institutions for the analyses of employment and involvement with the Indian community was only 33. Similarly, the sample

EXHIBIT 12

Primary Source Used to Obtain First Job

Source	Undergraduates #	Undergraduates %	Grad. Students #	Grad. Students %
Number in Analysis	48		110	
1. Placement Office	9	19%	14	13%
2. On-campus recruiter	5	10%	9	8%
3. College staff member	1	2%	10	9%
4. Newspaper	7	15%	6	6%
5. Family or friend	11	23%	13	12%
6. Tribe, band or group	7	15%	7	6%
7. Other	8	17%	51	46%

sizes of graduate institutions were small: 88 (of 123) in the analysis of degree completion; 49 in the analysis of employment; and 50 in the analysis of job involvement with the Indian community.

The results of the analyses showed--not surprisingly--that our models accounted for relatively little of the variation in the outcomes. None of the equations differentiated institutions on the outcomes significantly better than chance. Thus, we cannot conclude that any particular set of features of an institution is more likely to contribute to positive outcomes for recipients than any other set.

Summary

The most striking results concern outcomes for recipients:

- Degree completion: 74 percent of undergraduate and 80 percent of graduate student Fellows completed their degree programs or (as of April 1990) were still enrolled in good standing;
- Employment: 59 percent of undergraduate and 85 percent of graduate student recipients were unemployed for three months or less following their schooling; and
- Job involvement with the Indian community: 51 percent of undergraduate and 63 percent of graduate student recipients held at least one job that involved them with Indians or with issues concerning Indians.

Thus, the outcomes for most recipients were those desired by the authors of the Indian Education Act of 1988.

The findings that may prove more important to program managers are the results of multivariate analyses of the characteristics of recipients that predict positive outcomes. For undergraduate recipients:

- Predicting degree completion: Holding other variables constant, undergraduate recipients who took time out from schooling were less likely to complete their programs of study (or still be enrolled) than those who took no time out; and individuals who received the Fellowship for more than one year were more likely to complete their degrees (or still be enrolled) than those who received it for only one year.

For graduate student recipients:

- Predicting degree completion: Graduate student recipients with no children were more likely to complete degrees (or still be enrolled) than those with children; recipients in medicine were more likely to show this positive outcome than those in business or natural resources; recipients in natural resources were less likely to complete their programs (or still be enrolled) than those in medicine, business, law, and psychology;

- Predicting employment: Graduate student recipients who had received the Fellowship for more years were more likely to be continuously employed than those who had received it for fewer years; and

- Predicting job involvement with the Indian community: Graduate student recipients in different fields varied in their degree of involvement with those in natural resources most likely to be involved, followed by those in education, psychology, law, engineering, medicine, and business.

If program managers and policy makers choose to work with these findings, it is possible to define strategies for selecting recipients with the highest likelihood of completion from them or ideas for whom one might wish to provide with special assistance to foster positive outcomes. Thus, managers might decide that, for undergraduate applicants, having taken time out from schooling is a red flag. An applicant with this characteristic may need to be especially clear on goals, selection of university program, etc. before being selected as a Fellow. Or, OIE staff might wish to ensure that this applicant's university is in a position to provide support services, should they be needed. Similar, graduate student applicants with children might be reviewed more closely than others to ensure that the support system is present to accommodate the greater financial needs of these families and the greater requirements on the recipients' time. Once again, OIE staff could check that adequate support services are available at the institutions attended by such recipients.

The findings with regard to field of study and the differences in degree of success of undergraduate and graduate student recipients raise additional questions about selection procedures. It would be possible to favor graduate student applicants over undergraduates or

some fields over others. The issues associated with these decisions are discussed more thoroughly in the following chapter as these are issues of policy relevance for the program.

CHAPTER 4: POLICY AND PROGRAM MANAGEMENT ISSUES

In this chapter we have two goals: to address the policy issues described previously; and to summarize recipient comments and suggestions (as submitted on the recipient questionnaire) pertinent to program management and improvement.

Policy Issues

Three key policy issues were introduced in Chapter 1 (Introduction), and two of them were discussed in a preliminary fashion in Chapter 3 (Results). In this chapter we consolidate the evidence from the study of the issues in order to inform policy.

The first issue was generated by the decision in 1989 to change the criteria for selection of recipients from merit and financial need to merit alone:

1. Has the change in the criteria for award effected an appropriate change in the pool of recipients?

The other two issues arise from the specifications of the Indian Education Act concerning criteria for award:

2. Should findings with regard to field of study have an impact on the selection of future recipients?

3. Do differences in the results for undergraduate and graduate student recipients suggest that there is an optimal distribution of these two groups within the pool of recipients each year?

In the following sections, we address each of these questions.

The Effect of Dropping the Criterion of Financial Need

A complete test of the effect of changing the criteria for selection in 1989 would require a comparison of new undergraduate and graduate recipients in 1989 with new recipients pre-1989 in

terms of personal descriptors, academic preparation, academic program and progress, and outcomes. However, having only one year of recipients in the sample who were selected under the single criterion of merit has limited our ability to conduct such a comprehensive review. First, there were only seven new undergraduate recipients in 1989, a number too small to use as a base for policy discussions. Second, because recipients chosen under the single criterion were all still in their first year of recipiency, we could not compare outcomes. Continued monitoring is necessary to build the size of the sample and evaluate fully the effects of the change.

Exhibit 13 shows the results of an examination of the differences between graduate student recipients who were new awardees pre-1989 and in 1989. Significant differences were found on three measures.[11] First,

- Family income for independent students. The 25 new recipients in 1989 who reported family income had significantly higher incomes than the 166 new recipients pre-1989 ($t=-2.76$, $p<.01$). The average annual income of new recipients in 1989 was $18,354; for new recipients pre-1989, it was $11,659.

The effect of removing the criterion of financial need may have been to admit recipients with higher incomes, though these individuals (on average) cannot be said to be wealthy. We say "may" because other issues have affected our ability to test family income: the income levels of recipients pre-1989 were not converted to 1989 dollars and would be higher if such a conversion were made; the measure of income level has a different meaning for individuals who were students in the year it was measured than for those who were employed. Some new and most returning recipients were students in the year for which income data were gathered, and their income level would reflect the income of their spouses plus their supplemental income from

[11]A fourth measure, award amount, also showed significant differences, with new 1989 recipients receiving higher award amounts than new recipients pre-1989. However, when we examined awards only for 1989, the amounts were virtually equivalent.

EXHIBIT 13

Comparisons of New Recipients Pre-1989 and 1989: Graduate Students Only

	New Recipients: Pre-1989		New Recipients: 1989	
	#	%	#	%
Number of Recipients	271		34	
Gender				
Female	134	49%	20	59%
Male	137	51%	14	41%
Age				
16 - 21	1	0%	0	0%
22 - 26	101	38%	11	32%
Over 26	167	62%	23	68%
Marital Status				
Single	177	66%	22	71%
Married	91	34%	9	29%
Number of Children				
0	157	58%	20	63%
1 or more	112	42%	12	37%
Financial Status				
Independent	239	93%	32	100%
Dependent	17	7%	0	0%
Family Income - Independent				
Under $5,000	52	31%	7	28%
$5,000 or above	114	69%	18	72%
Family Income - Dependent				
Under $25,000	3	19%	--	--
$25,000 or above	13	81%	--	--
GPA in College				
Under 2.67	36	15%	3	10%
2.67 - 3.33	128	54%	17	57%
3.34 or above	73	31%	10	33%
GPA in Graduate School				
Under 2.67	26	15%	2	10%
2.67 - 3.33	79	46%	4	19%
3.34 or above	67	39%	15	71%
MCAT Total Scores				
Under 50	13	42%	4	80%
50 or above	18	58%	1	20%
LSAT Total Scores				
Under 34	22	43%	3	60%
34 or above	29	57%	2	40%

EXHIBIT 13 (Continued)

Comparisons of New Recipients Pre-1989 and 1989:
Graduate Students Only

	New Recipients: Pre-1989		New Recipients: 1989	
	#	%	#	%
Instances of Stopping Out				
None	83	33%	5	15%
At least one	170	67%	29	85%
Part-time Study				
At no time	162	73%	22	73%
At some time	61	27%	8	27%
Changed Schools Within a Degree Program				
At no time	158	59%	24	71%
At some time	109	41%	10	29%
Field of Study				
Business Administration	34	13%	5	15%
Education	54	20%	9	26%
Engineering	6	2%	2	6%
Law	76	28%	6	18%
Medicine	58	21%	6	18%
Natural Sciences/Resources	12	4%	0	0%
Psychology/Clinical Psychology	31	12%	6	18%
Total IEF Award Amount (Most Recent Year)				
Under $1,000	4	2%	1	3%
$1,001 - 5,000	50	19%	2	6%
$5,001 - 10,000	96	35%	7	21%
$10,001 - 15,000	74	27%	11	32%
$15,001 - $20,000	30	11%	8	24%
Over $20,000	17	6%	5	15%
Annual Cost of Schooling				
Under $1,000	1	1%	0	0%
$1,001 - 5,000	17	10%	0	0%
$5,001 - 10,000	30	18%	3	15%
$10,001 - 15,000	51	31%	7	35%
$15,001 - 20,000	34	21%	5	25%
Over $20,000	31	19%	5	25%
Number of Other Sources of Financial Aid				
0	142	53%	21	62%
1	66	24%	5	15%
2	33	12%	6	17%
3	20	7%	1	3%
4 or more	10	4%	1	3%

summer jobs or part-time work during the school year. Unfortunately, we do not know which recipients were students in the year for which income data were submitted. Because we cannot determine whether we have given individuals an equal chance for income (i.e., full-time employment), we did not attempt to adjust incomes to 1989 dollars and cannot assess the meaning of these apparent differences in income between the groups.

The second significant result is a comment on the criterion of merit:

- Grade point average (GPA) in graduate school. New recipients in 1989 had significantly higher GPAs in their graduate school programs than new recipients pre-1989 ($t=-2.53$, $p<.05$). The mean for new recipients in 1989 was 3.46, and for new recipients pre-1989, 3.17.

The change in criteria for selection does appear to have had an effect on the average academic achievement level of recipients. New recipients in 1989 showed higher GPAs in their graduate programs than recipients who first received their awards pre-1989. This is an interesting finding since grade point averages in colleges were not significantly different for the two groups of recipients. About one-third of each group of recipients (31% of new recipients pre-1989 and 33% of new recipients in 1989) had college GPAs of 3.34 or above. It would be interesting to know if these recipients' graduate school grades remain high.

The third difference concerns taking time out from schooling:

- Instances of stopping out. New recipients in 1989 were more likely to have taken some time out than new recipients pre-1989 ($X^2(1)=4.62$, $p<.05$). Eighty-five percent of new 1989 recipients had stopped out at some point in comparison with 67 percent of new recipients pre-1989.

The reason for this finding--and its potential significance--is not clear. There is some concern in that taking time out from schooling--for undergraduates--was related to leaving their programs without completion, but that finding did not hold for the group of all graduate student recipients. On the other hand, by the spring of 1990, three of the 34 graduate student recipients newly

selected in 1989 had left their programs of study (nine percent). There seems to be some chance that this group's eventual completion rate will be lower than that of new recipients pre-1989.

In summary, there may be differences in recipients selected under the new single criterion of merit. New 1989 recipients who were financially independent of parents had higher incomes than financially independent recipients pre-1989. New 1989 recipients had higher graduate school GPAs, which suggests that the criterion of merit is appropriately applied. And new recipients in 1989 had more frequently taken time out from schooling than new recipients pre-1989. It will be important to watch and see whether the completion rate for the new 1989 recipients will continue at the high level set by earlier groups.

However, with regard to the appropriateness of the change in criteria of award, one might argue that the differences are minimal. It is within the spirit of the legislation to award Fellowships to those who show the highest degree of merit (e.g., have high GPAs), and our results show this group is favored. The exclusion of the criterion of financial need may have changed the income level of the group of recipients, but other factors may have been more important in creating this difference.

Potential Changes in Allowable Fields of Study

The Fellowship program allows for undergraduate study in the three fields of business administration, engineering, and natural resources (and related areas) and for graduate study in these fields plus education, law, medicine, and psychology. One of the questions that can be addressed by project data is the relative success of recipients in these fields.

There were no significant differences for undergraduates in the three eligible fields in terms of outcomes, but there were interesting differences for graduate student recipients. Specifically,

- Recipients in the field of medicine were more likely to complete their programs of study than recipients in business and natural resources;
- Recipients in the field of natural resources were less likely to complete their programs than recipients in business, law, medicine, and psychology;
- Recipients in the field of natural resources were more likely than recipients in any other field to hold at least one professional job that involved working with of the Indian community; and
- The ranking of fields in terms of job involvement with the Indian community continues with education, psychology, law, engineering, medicine, and business. Differences were significant within the hierarchy above the field of engineering, but recipients in the final three fields did not differ in degree of involvement.

There is an interesting interaction of results for degree completion and job involvement with the Indian community for recipients in different fields. First, those in medicine almost always complete their programs of study (95% had completed or were still enrolled), but in the time frame of this follow-up evaluation, few (30%) had taken jobs involving Indians. Second, only half (three of six) of the recipients in natural resources completed their programs or were still enrolled, while most of these (four of the five who returned the questionnaire) elected employment in jobs that involved Indians. Third, relatively few recipients in engineering and business completed their programs (62% and 69%, respectively) and relatively few had jobs involved with the Indian community (50% and 27%, respectively).

If the intent of the Fellowship is primarily to help Indian students complete their programs of study, then program managers might give preference to applicants in medicine, at least over those in natural resources and business administration. If they wish to emphasize the importance of using one's skills to benefit the Indian community, then the emphasis could be placed on the field of natural resources (and, perhaps, on the fields of education, psychology, and law). If the presence of both of these outcomes is strongly desired, then they might de-emphasize study in the fields of engineering and business.

Instead of evaluating the possibility of prioritizing fields of study, program managers could also use these data to inform the process of providing technical assistance to institutions or support to individual recipients. In order to ensure students' success in completing their programs of study, program managers might target assistance to those students in natural resources, engineering, and business or the institutions attended by these recipients.

One question with regard to findings about field of study is the role of the Fellowship program in influencing students' decisions to attend school or study in a particular field. Data on Exhibit 14, gleaned from the questionnaires, shows that the existence of the Fellowship influenced the decision to attend college or graduate school "very much" or "somewhat" for 61 percent of the undergraduate and 68 percent of the graduate student recipients. Further analyses showed that the program had least influence on graduate students in medicine; only 47 percent of these recipients were influenced very much or somewhat in their choice to attend graduate school.

In addition, the Fellowship program requirements influenced the choice of field of study "very much" or "somewhat" for 36 percent of the undergraduate and 33 percent of the graduate student recipients. A check on the distribution of these recipients by field shows that there are some fields for which the Fellowship had a great deal of influence and one field for which it made little difference. For undergraduates, a relatively large percentage of recipients in the field of natural resources (45%) were at least somewhat influenced in their choice of field by program requirements. For graduate student recipients, those who had chosen education were particularly influenced (50%), but those who had chosen medicine or natural resources were rarely seriously influenced by the program (21% and 17% of the time, respectively).

It seems that recipients in medicine are clear on their intent to pursue their vocation and seek out the Fellowship to further their goals. So, too, are graduate student recipients in the field of natural resources. But many undergraduates in natural resources and graduate students in

education have responded to the Fellowship program in choosing their fields; the fields may not be their first choice for schooling or vocation.

Unfortunately, these results on the influence of the Fellowship program do not mesh totally with results on outcomes. If graduate students in medicine and natural resources chose their fields without influence from financial aid sources, then one might hypothesize that they would be more likely to complete their programs of study. Completion is greater for graduate students in medicine, but it is lower for graduate students in natural resources. Either this indicator of motivation is inappropriate, or the small sample size of recipients in natural resources is problematic. What is clear is that recipients in medicine do well in their programs of study; we must see whether they eventually put their learning to work to benefit the Indian community.

A final note relevant to this discussion of fields is provided by the six recipients who commented on the eligible fields on their questionnaires. They would like to see the list of fields enlarged and offered the following options:

- Extend the set of graduate fields into undergraduate study by allowing undergraduates to major in education, pre-law, pre-medicine, and other fields such as biology and chemistry that prepare students for graduate study in approved fields; or
- Open the Fellowship to students in all fields, as each individual's education can benefit the Indian community.

The Optimal Proportion of Undergraduate versus Graduate Recipients

A third potential area of concern is the proportion of recipients who are undergraduates versus graduate students. Overall, the 180 undergraduates constitute 37 percent of the 485 recipients (three were recipients both as undergraduates and graduate students); of the 777 awards made in the five-year period under study, 259 (33%) were to undergraduates. The

percentage of awards to undergraduates has generally decreased over the years from 42 percent in 1985 to 37 percent in 1986, 32 percent in 1987, 23 percent in 1988, and 25 percent in 1989.[12]

Three of the difficulties in funding large numbers of undergraduates are that somewhat fewer of them complete their programs of study (74% versus 80% of graduate students), fewer become continuously employed in their fields of study (59% versus 85% of graduate students), and fewer have jobs that involve them with the Indian community (51% versus 63% of graduate students). The advantage of funding undergraduates is that their cost of schooling, on average, continues to be less than that of graduate students ($9,176 for undergraduates in 1989 versus $13,704 for graduate students): more individuals could be funded if a higher percentage of recipients were undergraduates.

There is no obviously "right" proportion of undergraduate and graduate student recipients. But there are definitely factors to be considered in any decision about future funding regarding the distribution of recipients at these two levels. It is not clear whether the decrease in the percentage of undergraduates is intentional; at the least program managers should be aware of the trend and make a conscious decision about the distribution.

Program Management Issues

The final question on the recipient questionnaire asked for comments on the Fellowship program. Nearly 100 recipients took this opportunity to discuss the benefits the program had for them. Some reported that the Fellowship made it possible for them to attain their educational goals, that higher education would not have been possible without this financial assistance. Others said that the Fellowship enabled them to upgrade the quality of their education by

---

[12]Please note that a part of this decrease may be due to a decrease in the proportion of undergraduates applying for the Fellowship.

attending better (if more expensive) schools. Because recipients were able to attend the professional schools of their choice and graduate without financial obligations, many credited the program with enabling them to pursue and achieve their professional goals.

Many recipients felt that the Fellowship program allowed them to develop skills and knowledge that will continue to have a positive impact on their Indian communities. The program makes Indian students aware that college is an option for them. Recipients who return to the tribe contribute through the skills they have gained and serve as role models for other Indians.

In addition to these positive comments, recipients reported issues and suggestions for program improvement for each phase of the process of administering the Fellowship program: dissemination of information; application process; review process and award of Fellowships; and communication with OIE staff.

Dissemination of Information

About 15 recipients reported that they thought more Indians would take advantage of the Fellowship opportunity if they were aware of the program's existence. Most of these recipients were unclear about when and to whom applications were distributed. They recommended that information about the Fellowship be widely dispersed through college financial aid offices, high schools, Indian tribes, and through the recipients themselves.

Exhibit 15 supports these comments with data from the recipient questionnaire. The source of information about the program for recipients was more often a family member or a friend than any other. Forty-three percent of undergraduate recipients and 38 percent of graduate student recipients heard first about the Fellowship by word of mouth from family or friends. For the undergraduates the next most frequent category was high school staff member

EXHIBIT 15

How Recipients Found Out About Fellowship Program

Source of Information	Undergraduates #	Undergraduates %	Grad. Students #	Grad. Students %
Number in Analysis	102		167	
1. College financial aid office	6	6%	26	15%
2. Family or friend	44	43%	63	38%
3. High school staff member	21	20%	1	1%
4. Tribe, band, or group	14	14%	15	9%
5. Indian Education Fellowship staff	5	5%	9	5%
6. Other	12	12%	53	32%

(20%). For graduate student recipients, it was "other" (32%) which consists largely of other Indian organizations and general financial aid materials.

Application Process

About 30 recipients wrote that the application process was cumbersome and should be simplified. Their suggestions included clarifying the directions (particularly about what information to send in what form); including only one name and address for an individual to whom an applicant should report; and including all of the forms needed to document financial resources. Reduction in paper work for recipients was highly valued.

A particular concern of several recipients was their feeling of the lack of accessibility of the Fellowship to reservation Indians. They thought that the complicated nature of the application process excluded Indians who, as one recipient stated, are not "schooled in the Western methodologies and bureaucracies". Should the process remain the same, more personal support to these applicants is essential to take them through each question and required form.

The timing of the application process was the focus of about 10 comments. Recipients asked that OIE allow the maximum amount of time possible for completing the application, pay attention to school calendars in setting the due date (to ensure that first-term grades are available, for example, when the application requires them), and notify recipients as early as possible so that they know they will be able to attend school.

Review Process and Award

Approximately 15 recipients were unclear on the criteria used in selecting (and rejecting) Fellows; they would appreciate clarity. Each had been accepted at one point in time and rejected at another. For example, one recipient reported receiving the Fellowship one year to study biology and being rejected the next year to continue to study in the same biology program. One year the field was approved; the next year it was not. Another recipient reported that she learned that there was a limit on the number of years she could receive the Fellowship when she applied for support for the fifth year of her five-year program and was rejected. To some individuals, the

reasons for rejection seemed to result from miscommunication or minor typographical mistakes and errors of form, rather than from more substantial grounds. One of these recipients reported having a 3.8 GPA (out of a possible 4.0) and being told his grades were not high enough. Another reported having sent multiple copies of tribal membership, only to be told he did not belong to a tribe. It would assist applicants greatly if they were aware of any specific criteria upon which they would be judged and the full and correct set of reasons for their rejection, if in fact they are rejected.

Two Fellows suggested that former recipients could be usefully involved in the selection process. These individuals offered to serve on OIE's selection panel and help evaluate applications.

The timing of the awards raised frustrations for about 30 recipients as well. Most of these individuals reported that awards were made well into the fall semester, and that this practice created significant stresses. They had to take short-term loans to pay tuition or were unable to register for classes because the monies simply came too late. They suggested a date in early August (at the latest) by which all announcements of awards should be made.

At times it was the award amount that seemed problematic. About 20 recipients requested more flexibility in consideration of special circumstances of applicants. For example, an individual who was commuting from his home a fair distance from school needed additional money for gasoline. A recipient who had a new baby had unforeseen expenses. A feeling of being able to negotiate for funding for such needs would be much appreciated. As might be expected, some of these recipients suggested that funding be extended to cover other education-related expenses. One individual requested extended funding to cover the period in which law students study for the bar exam. Several wanted additional funding for thesis and dissertation research. Others needed monies for summer study.

Communication with OIE Staff

About 30 recipients commented on their difficulties communicating with OIE staff. It often took multiple telephone calls to talk with someone; and OIE staff were often not helpful when a connection was finally made. Recipients suggested that OIE develop a system for returning calls in a timely manner and offer a toll-free line for questions. In addition, program staff could inform recipients of significant developments through telephone calls or a short newsletter.

Several recipients commented on difficulties in communication between the OIE and individual college financial aid offices. Their financial aid offices had problems accessing and distributing Fellowship funds either because the officers were unfamiliar with the Fellowship program or because the financial aid officers, too, had trouble reaching and getting assistance from OIE staff. A single financial aid contact at each school could resolve some confusion. In addition, a system at the OIE for returning financial aid officers' calls would facilitate communication.

Summary

The data addressing the first policy question--about the effects of the change in selection criteria--will allow ED to answer Congressional questions and allay concerns. The group of new Fellowship recipients in 1989 were very similar to new recipients in previous years. The change in criteria did not appear to select a very different group of individuals: new recipients in 1989 had higher graduate school GPAs than new recipients pre-1989, but no other meaningful differences seemed to appear.

The data concerning the other two policy issues raise questions for decision makers. The results on differential outcomes for graduate student recipients in different fields suggest establishing priorities among the approved fields. The results showed that individuals in the fields of medicine and natural resources, in particular, were differentially likely to show the outcomes of

degree completion and job involvement with the Indian community. Graduate student recipients in medicine were more likely than those in business and natural resources to complete their degree programs (or still be enrolled). Graduate students in natural resources were (1) less likely to complete their degrees than recipients in business, law, medicine, and psychology and (2) more likely than those in other fields to be involved with the Indian community. Some thought on the relative merits of these outcomes may prove important in deciding if priorities among the approved fields should be defined.

A similar discussion could occur with regard to the proportion of awards to be made to undergraduates as opposed to graduate students. More students could be given awards if a higher proportion of awards were presented to undergraduates: their awards, on average, are lower than those to graduate students. But somewhat fewer undergraduates complete their programs of study, find continuous employment, and take jobs that involve them with the Indian community. The percentage of awards made to undergraduates has been decreasing over time; this may be the moment to examine the trend and make a conscious decision about the distribution of awards to undergraduates and graduate students.

Finally, recipients recorded numerous suggestions for the Fellowship program that can be considered by program managers. They felt strongly about the worth of the program to them as individuals and to the broad community of Indians and were pleased at their status as recipients. However, they stated that valuable program improvements would include increasing the dissemination of information about the program, streamlining the application process and providing more assistance to applicants, clarifying the criteria for award and the process of decision-making, and improving communication among all groups involved.